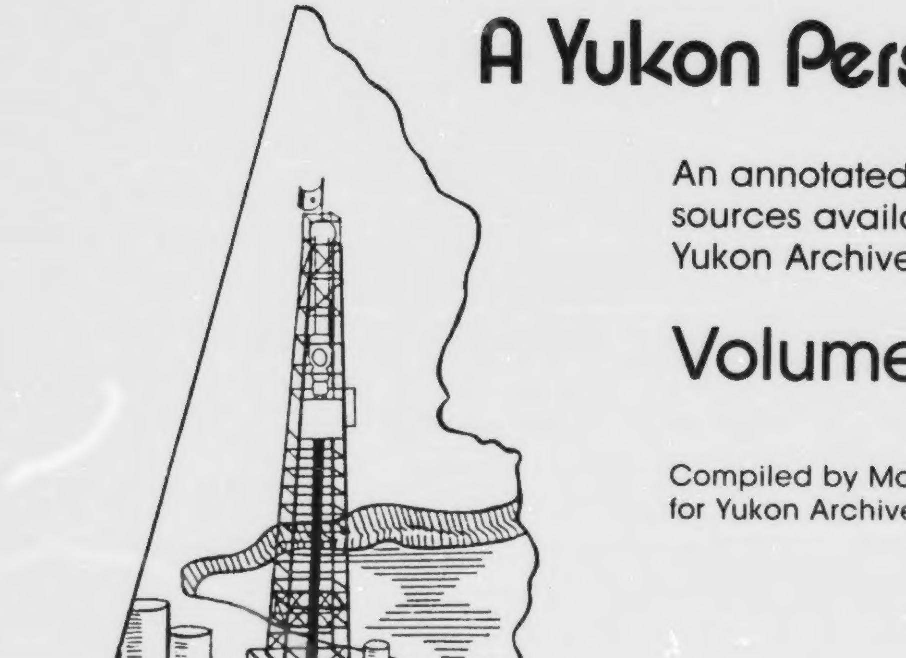
Hydrocarbon Development

A Yukon Perspective



An annotated bibliography of
sources available in the
Yukon Archives

Volume Two

Compiled by Mary R. Raines
for Yukon Archives

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March 24, 1988

Dear Colleague:

Please accept the enclosed complimentary copy of our recently published bibliography, Hydrocarbon development - a Yukon Perspective: an annotated bibliography of sources available in the Yukon Archives, volume 2. Included are all relevant titles acquired by the Archives prior to May, 1987.

This represents an important milestone in our Beaufort hydrocarbon information acquisition and processing project funded by the federal government's Northern Oil and Gas Action Plan. NOGAP was initiated in 1982 to accelerate both federal and territorial government preparedness for hydrocarbon development activity in the Beaufort Sea and the North Slope, Yukon.

I would appreciate your making your staff or colleagues aware of our bibliography and making it as accessible to your patrons/researchers as possible, whether through a departmental collection or by deposit in the university library. Please advise me if you would like additional copies.

Thank you for your continuing interest.

Yours sincerely,

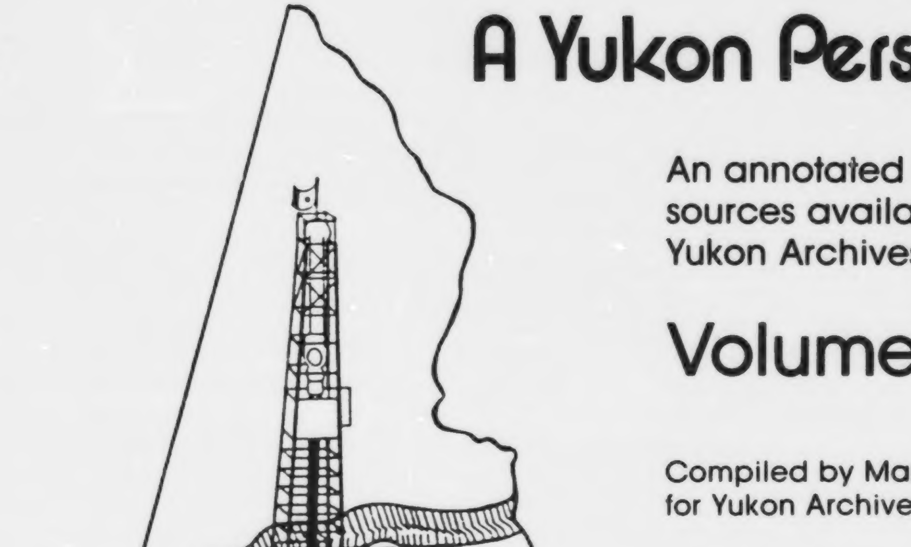
Diane Chisholm

Diane Chisholm
Assistant Territorial Archivist

DC/mrb

Hydrocarbon Development

A Yukon Perspective



An annotated bibliography of
sources available in the
Yukon Archives

Volume Two

Compiled by Mary R. Raines
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VOLUME TWO

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INTRODUCTION TO VOLUME TWO

Both Volume One of "Hydrocarbon Development: a Yukon Perspective" and this second volume were funded under the federal government's Northern Oil and Gas Action Program (NOGAP). NOGAP was established in 1984 to implement a federal/territorial government socio-economic, environmental and technical research and planning program to support regulatory, policy and program responsibilities and to achieve a state of readiness for northern hydrocarbon production. This Yukon Archives NOGAP project is designed to acquire, catalogue and make available here in Yukon, research reports and other literature associated with northern hydrocarbon development, particularly related to the Beaufort Sea, as it impacts on Yukon. The compilation of this annotated bibliography of the Beaufort Sea collection for use by researchers, members of the business community, special interest groups, and the general public, is an integral part of the project.

1988 is expected to be an historic year in the development of Canada's Beaufort Sea region, as Gulf Canada Resources and partners begin commercial oil production from the 800 million barrel Amauligak field. Oil will be produced from a caisson-retained island, 182 metres long and 120 metres wide consisting of prefabricated barges sitting on an undersea hill of dredged sand, and will be shipped by tanker via the Bering Strait.

Two other events brought the Beaufort area into sharp focus recently. One is the controversial proposal to issue oil exploration licences in Alaska's Arctic Wildlife Refuge, calving ground of the Porcupine caribou herd. The other is the signing of a major agreement allowing oil and gas exploration in the Mackenzie Valley for the first time since the moratorium imposed following the Berger inquiry more than a decade ago. Volumes One and Two of Hydrocarbon Development, a Yukon Perspective are a current and comprehensive source of information on these topics. The publication of Volume Two is timely as it coincides with a period of rising optimism about the resource potential of the Beaufort Sea area and increasing co-operation between industry, governments and native groups in the area.

Since the publication of Volume One of the bibliography, many new items have been added to the Beaufort Sea collection. Volume Two has been compiled as a companion to Volume One to provide a bibliographic survey of, and access to, the vast amount of information related to northern hydrocarbon development located in the Yukon Archives. The geographic emphasis remains Yukon and the Beaufort Sea, but material dealing with the Northwest Territories and Alaska, as well as some east coast exploration and production material is also included where it is relevant. This material makes it possible to draw analogies between developments elsewhere in Canada.

Contained in the bibliography are entries for both published and unpublished works held in the Yukon Archives, including monographs, articles in books, government, consultant, and corporate reports, and conference, workshop and symposium proceedings. As with Volume One, time limitations did not permit the inclusion of serials, periodicals, newspapers or, with very few exceptions, pamphlets.

The 911 entries in the bibliography have been grouped alphabetically by title within a series of broad subject categories, as shown on page i. Each category is identified by a letter while individual entries within each category are numbered sequentially. Entries are not intended to present a critique of a particular work but rather to provide a brief description in terms of intent, content, and targetted audience. While the subject categories are broad and largely self-evident, a few points should be noted. Because of its extent, Category A, Environment, is broken down into seven sub-categories; the first of these, General, includes those works dealing with environmental protection and miscellaneous environmental issues. Oil spill countermeasures are found in Category D, Technology when the content is concerned with the technological aspects of the subject but are found in Category A, Environment, sub-category 6 - Oil Pollution when the entry is more concerned with the environmental aspects. Category F, Government, includes pipeline inquiries, environmental assessment panels and reviews, regulatory bodies, and legislation, as well as government policy and perspectives on northern hydrocarbon development. Works dealing with the issues, problems and potential of northern energy development in the broad context are found in Category E, Northern Energy Development. Because a work is assigned only to a single category, this assignment may be somewhat arbitrary so the reader is advised not to limit searching in the index to one keyword or phrase but rather to look for variants of the word or term that relate. Cross references are included in the keyword index where deemed useful.

The keyword index and list of abbreviations have both been expanded for Volume Two. The keyword index appears on page 521, the list of abbreviations on page ix. A personal author index is found on page 479 and a corporate author and/or publisher index on page 507.

This bibliography was compiled by Mary Rae Raines under the direction of Sally Bremner, Beaufort Sea Librarian. Word processing was done by Marlene Bovy.

SAMPLE ENTRIES

citation no.	title of book
B 41	OLD CROW, Y.T., AND THE PROPOSED NORTHERN GAS PIPELINE.
author of book	J.K. Stager.
series	Environmental-Social Program Northern Pipelines, Task Force on Northern Oil Development, Report No. 74-21.
place published	Ottawa : Environmental-Social Committee Northern
publisher/distributor	Pipelines, 1974. 233 pp.
	date no. of pages
call no.	330.971 ESCNP 74-21
annotation	This study assesses and states conclusions related to the consequences of building and operating a trunk gas pipeline through the northern Yukon upon the social and economic life of the people of Old Crow, Y.T. The cultural and historical background of Old Crow, recent changes, and the pipeline project and its effect are discussed in detail. A summary and bibliography are included.
subjects under which item is indexed	Old Crow, Yukon / Yukon, northern / customs / native peoples / employment / pipelines / local business / social conditions / social services / socio-economic impacts

citation no.	title of article
D 56	"Alaskan Beaufort Sea Oilspill Response Body."
author of article	A.A. Allen.
title of book	In OIL, ICE AND GAS: PROCEEDINGS OF A WORKSHOP HELD IN TORONTO, OCTOBER 10-11, 1979.
editor of book	edited by D. Mackay and S. Paterson.
place published	Toronto : Institute for Environmental Studies,
publisher/distributor	University of Toronto, 1979. pp. 129-133.
	date pages
call no.	333.823 Oil
annotation	This is a brief description of the Alaskan Beaufort Sea Oilspill Response Body (ABSORB), a joint venture established on March 1, 1979 by 13 oil companies interested in offshore exploration and development activities off the North Slope of Alaska.
subjects under which item is indexed	Alaskan Beaufort Sea / oil spill countermeasures / blowouts / oil pollution / Arctic / sea ice / technology

citation no. title of book

G 5 WRITTEN ARGUMENT TO THE NATIONAL ENERGY BOARD.

corporate author → Canadian Arctic Gas Pipeline Limited.

place published → s.l. : s.n., n.d. 2 vol.

publisher/distributor date no. of volumes

call no. → 330.971 99 CAGPL

annotation → This written argument was filed on behalf of CAGPL in its application for authority to construct and operate a pipeline to transport gas from Alaska to southern markets. Volume 1 details route selection, pipeline design, geotechnical consideration, construction, operations and costs. Volume II details socio-economic and environmental considerations, reserves, markets and comparisons of the competing projects.

subjects under which item is indexed → CAGPL / NEB / pipelines / Alaska / pipeline design / pipeline construction / pipeline financing / energy reserves

**N.B. In bibliographic citation:

s.l. = no place of publication
s.n. = no publisher
n.d. = no date

ABBREVIATIONS

AEIDC	- Arctic Environmental Information and Data Center
AHGP	- Alaska Highway Gas Pipeline
AMOP	- Arctic Marine Oilspill Project
AOSC	- Arctic Operators' Safety Committee
APOA	- Arctic Petroleum Operators' Association
ARCOD	- Arctic Offshore Development Committee
ASTIS	- Arctic Science and Technology Information System
BIOS	- Baffin Island Oil Spill Project
BSEAP	- Beaufort Sea Environmental Assessment Panel
BSEARP	- Beaufort Sea Environmental Assessment & Review Panel
CAGSL	- Canadian Arctic Gas Study Ltd.
Canmar	- Canadian Marine Drilling Ltd.
CARC	- Canadian Arctic Resources Committee
CEARC	- Canadian Environmental Assessment Research Council
CEIC	- Canada Employment and Immigration Commission
CHS	- Canadian Hydrographic Service
CIDS	- concrete island drilling structure
COAATF	- Canadian Offshore Aerial Applications Task Force
COGLA	- Canadian Oil & Gas Lands Administration
COOSRA	- Canadian Offshore Oil Spill Research Association
COPE	- Committee for Original Peoples' Entitlement
COTRA	- Canadian Oceans Technology and Research Authority
CPA	- Canadian Petroleum Association
CPA-OOD	- Canadian Petroleum Association - Offshore Operators' Division
CTC	- Canadian Transport Commission
CYI	- Council for Yukon Indians
DEMR	- Dept. of Energy, Mines & Resources
DFO	- Dept. of Fisheries & Oceans
DIAND	- Dept. of Indian Affairs & Northern Development
DITC	- Department of Industry, Trade and Commerce
DOE	- Dept. of the Environment
EAMES	- Eastern Arctic Marine Environmental Studies
EAP	- Environmental Assessment Panel

EARP	- Environmental Assessment & Review Panel
EIS	- environmental impact statement
EPOA	- Eastcoast Petroleum Operators' Association
ESRF	- Environmental Studies Revolving Funds
FEARO	- Federal Environmental Assessment Review Office
FOPL	- Foothills Oil Pipe Line Ltd.
FPL	- Foothills Pipe Lines Ltd.
FPL(SY)	- Foothills Pipe Lines (South Yukon) Ltd.
FPL(Y)	- Foothills Pipe Lines (Yukon) Ltd.
GNWT	- Government of the Northwest Territories
GSC	- Geological Survey of Canada
LNG	- liquified natural gas
MAI	- mobile arctic island
MEMP	- Mackenzie Environmental Monitoring Program
NAPL	- National Air Photograph Library
NEB	- National Energy Board
NEP	- National Energy Program
NOGAP	- Northern Oil and Gas Action Program
NRC	- National Research Council of Canada
OCS	- Outer Continental Shelf
OSCEAP	- Outer Continental Shelf Environmental Assessment Program
PAC	- Public Archives of Canada
PERD	- Panel on Energy, Research and Development
SHADS	- sonic hybrid arctic drilling structure
TAPS	- TransAlaska Pipeline System
TC	- Transport Canada
YTG	- Yukon Territorial Government

ENVIRONMENT

GENERAL

A 1 ALASKA HIGHWAY GAS PIPELINE PROJECT. ENVIRONMENTAL CONCERNS AND RECOMMENDATIONS OF THE YUKON WILDLIFE BRANCH.
Yukon. Yukon Wildlife Branch.
[Whitehorse, Yukon] : Yukon. Government of Yukon, 1977. 159 pp.

333.720 971 91 YTGw

This document expresses the concern of the Yukon Wildlife Branch that insufficient consideration was given, by the National Energy Board (NEB) and Foothills Pipelines (Yukon) Ltd. (FPL(Y)), to the environmental impact of pipeline development on some wildlife species. The report, compiled for presentation to the Alaska Highway Gas Pipeline (AHGP) project Environmental Assessment and Review Panel (EARP), identifies potential wildlife problems arising from the pipeline impact. As well, aspects of wildlife behavior which make a species particularly vulnerable are outlined in this comprehensive report.

Yukon Territory / YTG / environmental impact / pipelines / NEB / FPL(Y) / AHGP / EARP / moose / caribou / sheep / goats / bears / bears, grizzly / fur-bearers / mammals / wolf / birds

A 2 ALASKA HIGHWAY GAS PIPELINE TECHNICAL HEARINGS, JUNE 7-12, 1982: FINAL REPORT OF THE ENVIRONMENTAL ASSESSMENT REVIEW OFFICE.
Alaska Highway Gas Pipeline Environmental Assessment Panel.
Federal Environmental Assessment and Review Process ; 21.
Hull, Quebec : Federal Environmental Assessment Review Office, 1982. 28 pp.

330.971 91 EAPt

This report presents the conclusions and recommendations of the Environmental Assessment Panel (EAP) following a review of information submitted by Foothills Pipe Lines (South Yukon) Limited (FPL(Y)) as addenda to the company's 1979 Environmental Impact Statement (EIS) for the Alaska Highway Gas Pipeline (AHGP).

FEARO / EAP / FPL(SY) / EIS / AHGP / pipeline construction / pipeline routes / pipeline crossings / geotechnology / hydrology / revegetation / fisheries / wildlife / land use / pollution / pollution, noise / erosion / environmental impact / environmental assessment

A 3 ALASKA HIGHWAY GAS PIPELINE YUKON HEARINGS, MARCH-APRIL 1979: REPORT OF THE ENVIRONMENTAL ASSESSMENT PANEL.
Alaska Highway Gas Pipeline Environmental Assessment Panel.
Federal Environmental Assessment and Review Process ; 10.
Ottawa, Ontario : Federal Environmental Assessment Review Office, 1979. 61 pp.

330.971 91 EAPy

This document was prepared by the Alaska Highway Gas Pipeline (AHGP) Environmental Assessment Panel (EAP) for submission to the Federal Environmental Assessment Review Office (FEARO). The report outlines the information deficiencies identified in the Environmental Impact Statement (EIS) submitted by Foothills Pipe Lines (South Yukon) Limited (FPL(SY)) in support of their proposal to construct the Yukon section of the AHGP.

AHGP / EIS / FEARO / EAP / FPL(SY) / pipeline construction / pipeline routes / geotechnology / hydrology / revegetation / fisheries / wildlife / land use / pollution, noise / erosion / pollution / pipeline crossings / environmental impact / environmental assessment / public hearings

A 4 THE ALASKAN ARCTIC COAST: A BACKGROUND STUDY OF AVAILABLE KNOWLEDGE.
Arctic Institute of North America, Alaska Office.
Anchorage, Alaska : Arctic Institute of North America, Alaska Office, 1974. 551 pp.

333.917 1 Arc

Prepared for the Corps of Engineers, U.S. Army, this report studies the environment of the Alaskan Arctic coastal zone and the potential impact of oil exploration and development activities. The scope of this study is extensive and both the environment and the socio-economic situations along the Alaska coast are examined in considerable detail. The text of the report has been kept fairly brief and charts and tables are used to present information. A selected bibliography is provided.

Alaska / Arctic / Beaufort Sea, Alaskan / Chukchi Sea / environmental impact / socio-economic impacts / northern energy development / coastal zone management / ice, sea / bathymetry / sedimentology / geology / climatology / mammals / mammals, marine / vegetation / algae / birds / fish / benthic invertebrates / insects / zooplankton / land use / transportation / native peoples / social conditions

A 5 THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. 466 pp.

551.468 7 Ala

This volume contains a collection of articles which highlight recent studies on the Alaskan Beaufort Sea environment and ecosystems. The theme of these articles is the need for environmental research designed to pinpoint problem areas and ensure safe exploitation of hydrocarbon resources. Each article in the volume includes a list of references and a general index is provided.

Beaufort Sea, Alaskan / Continental Shelf, Alaska / environmental protection / ecosystems, aquatic / ecology / Arctic / northern energy development / Alaska

A 6 ANALYSIS OF ENVIRONMENTAL PROTECTION ACTIVITIES FOR THE ALASKA HIGHWAY GAS PIPELINE PROJECT.
Canada. Environmental Impact Control Directorate and the Pacific and Northwest Regions.
Canada. Environmental Protection Service. Policy and Planning Report EPS-2-EC-77-1.
Ottawa, Ontario : Canada. Environmental Protection Service, 1978. 32 pp.

330.971 9 EPS

This document records the analyses made to determine resources necessary to achieve adequate environmental protection on the Alaska Highway Gas Pipeline Project (AHGP). The schedules of activities for Foothills Pipe Line (Yukon) Ltd. (FPL(Y)) and the Northern Pipeline Agency are assessed as well as the probable requirements in numbers of people needed and the time schedule for conducting the environmental assessment. The contents of this document relate to the entire pipeline project from the Alaska-Yukon border to the 49th parallel.

AHGP / FPL(Y) / Northern Pipeline Agency / environmental assessment / Alaska / Yukon Territory / pipelines / pipeline routes / environmental protection

A 7 ANNUAL REPORT OF THE ENVIRONMENTAL COORDINATOR FOR THE SHAKWAK HIGHWAY PROJECT.
Richard B. Spencer.
Whitehorse, Yukon : Canada. Department of Public Works and U.S. Department of Transportation, Federal Highway Commission, 1979.
127 pp.

333.772 Spe

The Shakwak Highway Project is the name given to the joint Canadian/U.S. proposal to pave the Canadian section of the Haines Road and the Alaska Highway from Haines Junction north to the Alaska border. This is the second annual report of the Environmental Coordinator and it provides information on the current status of construction, design studies, and, specifically, the status of all ongoing environmental protection programs relative to the project. The major portion of this report itemizes environmental commitments identified in the project's Environmental Impact Statement (EIS) and then provides a detailed data sheet on each commitment. A list of references cited is provided and photographs appear throughout.

Haines Road / Alaska Highway / Shakwak Project / government / road construction / EIS / environmental protection / hydrology / terrain disturbance / vegetation / fish / wildlife / socio-economic aspects / archaeology

A 8 "Arctic Marine Environmental Studies."
Allen R. Milne.
In PROCEEDINGS OF THE EIGHTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 7-9, 1979.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Calgary, Alberta : Arctic Institute of North America, 1979.
pp. 28-43.

333.823 05 Arc 1979

This author defines marine environmental studies as tools which are used to predict natural and man-made changes that could occur during offshore oil and gas operations. Three major study programs are reviewed briefly - those concerning the Beaufort Sea Project (Dome Petroleum); the Eastern Arctic Marine Environmental Studies (Norlands Petroleum, Esso); and the Offshore Labrador Biological Studies (Department of Energy, Mines and Natural Resources). The design of environmental studies is discussed and the environmental assessment and review process is explained. The paper is illustrated, by use of charts and a map, and a list of references is included.

Beaufort Sea / Dome / Baffin Bay, N.W.T. / Lancaster Sound, N.W.T. / Davis Strait, N.W.T. / Labrador / Norlands / Esso / government / environmental protection / EARP / EIS / drilling, offshore / workshops / APOA / CPA

A 9 "Arctic Marine Resources: Harvest and Utilization Panel."
H.R. Trudeau and G. Glazier.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 86-102.

333.823 05 Arc 1978

The Arctic Marine Resources: Harvest and Utilization Panel's discussions, at the subject workshop, are the topic of this paper. The report identifies the panel's objectives - to assess from existing data the current status of Arctic marine resources, their present level of harvest, their importance to the people who live in the Arctic and the expected impact from hydrocarbon exploration and production. Background study reports and a summary of the panel's discussions are presented. A short list of references is included.

northern energy development / Arctic / environmental impact / socio-economic aspects / whales / Beaufort Sea / seals / walruses / Arctic char / fish / swans / geese / ducks / gulls / terns / hunting / fishing / aquatic habitats / APOA / CPA

A 10 ARCTIC NATIONAL WILDLIFE REFUGE COASTAL PLAIN RESOURCE ASSESSMENT. FINAL REPORT BASELINE STUDY OF THE FISH, WILDLIFE AND THEIR HABITATS.
edited by Gerald W. Garner and Patricia E. Reynolds.
Anchorage, Alaska : U.S. Department of the Interior. U.S. Fish and Wildlife Service, 1986. 2 v.

333.710 979 87 ANWR

This two volume set contains the final report of a baseline study conducted under the provisions of the Alaska National Interests Lands Conservation Act of 1980, section 1002 - Arctic National Wildlife Refuge coastal plain assessment. The study area is a portion of the northern coastal plain and foothills of the wildlife refuge covering approximately 630,000 hectares, including some 135 km of Beaufort Sea coastline, and bordered on the east by the Yukon Territory. This extensive report provides a study of fish and wildlife, with specific emphasis on caribou, wolves, wolverines, grizzly bears, migratory waterfowl, muskoxen, and polar bears. The size, range and distribution of the populations as well as the extent, location and carrying capacity of the fish and wildlife habitats are assessed. The impacts of natural processes and human activities, including the potential impacts of hydrocarbon exploration and production on fish, wildlife, and their habitats, and on the culture and lifestyle of affected native and other residents, are analysed. Many maps, charts and photographs are included and each of the eight chapters provides a list of literature cited.

Alaska / North Slope, Alaska / U.S.A. / environmental assessment / Arctic / fish / wildlife / caribou / caribou, Porcupine / wolf / wolverine / bears, grizzly / waterfowl / bears, polar / muskoxen / socio-economic aspects / native peoples / wildlife habitats / aquatic habitats / vegetation / birds / moose / seals / whales / fox, Arctic / Arctic char / Arctic cisco / least cisco / whitefish / salmon / grayling / native harvest / exploration / hydrocarbon production / Dall sheep / seabirds / shore birds / pollution, oil / transportation / drilling

A 11 BEAUFORT EARP HEARINGS 1983: PARTICIPANTS, STATEMENTS AND COMMENTS ON KEY TOPICS AND ISSUES.
Canada. Department of Indian Affairs and Northern Development, Public Review Group, Northern Policy and Coordination.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, Public Review Group, Northern Policy and Coordination, 1984. 193 pp.

333.823 1 DIAND Com

This volume is a compendium of comments by participants at the Beaufort Sea Environmental Assessment and Review Panel (BSEARP) hearing pursuant to the Dome/Gulf/Esso proposal for hydrocarbon development in the Beaufort Sea. It is the intent of this document to provide a reference aid to the voluminous transcripts of the hearings and to be used as an aid for future planning. This volume does not cover every topic discussed; rather, key issues have been identified and are included here.

Dome / Gulf / Esso / DIAND / BSEARP / Beaufort Sea / northern energy development / environmental assessment / environmental impact / pollution, oil / socio-economic impacts / public hearings / native peoples / wildlife / fish / mammals, marine / wildlife habitats / pollution, noise / caribou, Porcupine / bears

A 12 BEAUFORT ENVIRONMENTAL MONITORING PROJECT 1984-85 FINAL REPORT.
ESL Environmental Sciences Ltd. et al.
Vancouver, British Columbia : ESL Environmental Sciences Ltd., 1985. 162 pp.

333.823 1 ESL

The Beaufort Environmental Monitoring Project (BEMP) was initiated by the Department of Indian Affairs and Northern Development (DIAND) and Environment Canada (DOE). The program's purpose is to provide the technical basis for the design, operation and evaluation of a comprehensive environmental research and monitoring program to accompany phased hydrocarbon development in the Beaufort Sea. This unpublished document is the report of the activities during the second year of the project and contains recommendations for future environmental studies.

Beaufort Environmental Monitoring Project / DIAND / DOE / environmental monitoring / Beaufort Sea / environmental protection / hydrocarbon production / exploration / mammals, marine / bears, polar / seabirds / fish / operations / transportation

A 13 BEAUFORT ENVIRONMENTAL MONITORING PROJECT 1985-1986 FINAL REPORT.
LGL Limited et al.
Canada. Department of Indian Affairs and Northern Development. Environmental Studies No. 40.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1987. 199 pp.

333.823 1 LGL 1985/86

This document presents the report of Beaufort Environmental Monitoring Project (BEMP) activities during the third year (1985-86) of the project including: a review of relevant studies initiated or completed since December 1984; preparation of project overviews describing the purpose of these investigations; the conduct of a workshop on bowhead whales; and research and discussion on oil-based drilling fluids. Recommendations for future environmental studies in relation to bowhead whales are included and references are provided. See previous entry for project background, and 1984/85 report.

Beaufort Environmental Monitoring Project / DIAND / DOE / environmental assessment / environmental monitoring / Beaufort Sea / whales / drilling fluids / pollution, oil / mammals, marine / fish / benthic invertebrates / birds

A 14 "The Beaufort Sea: Background, History and Perspective."
David Norton and Gunter Weller.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 3-19.

551.468 7 Ala

This paper describes the characteristics and history of the Beaufort Sea region, with emphasis on the area between Point Barrow, Alaska and the Canadian border. The authors describe the regional setting, including governance and ownership patterns, ecology, topography, oceanography and wildlife patterns. In discussing the history of the region, the authors look back to the Tareumiut people, who have occupied the northern Alaska coast for at least 2000 years, the influence of western culture and the effects of hydrocarbon exploration and production on the people and their environment. Photographs and diagrams illustrate this paper and a list of references is provided.

Beaufort Sea, Alaskan / Continental Shelf, Alaska / Alaska / history / topography / northern energy development / native peoples / socio-economic aspects / oceanography / wildlife / government

A 15 BEAUFORT SEA EARP HEARING 1983: DAILY SUMMARIES OF COMMUNITY AND GENERAL SESSIONS.
Canada. Department of Indian Affairs and Northern Development. Public Review Group, Northern Policy and Coordination.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, Public Review Group, Northern Policy and Coordination, 1984. 300 pp.

333.823 1 DIAND Sum

The Department of Indian Affairs and Northern Development (DIAND) initiated public hearings on the Dome/Gulf/Esso proposal for hydrocarbon exploration, production and transportation in the Beaufort Sea region by referring the proposal to the Federal Environmental Assessment Review Office (FEARO). This volume provides, in abstract form, daily summaries of the information contained in the lengthy official transcripts of the Beaufort Sea Environmental Assessment and Review Panel's (BSEARP) community and general sessions held from September 13 to December 16, 1983.

Dome / Gulf / Esso / DIAND / FEARO / BSEARP / Beaufort Sea / environmental assessment / environmental impact / pollution, oil / socio-economic impacts / public hearings / native peoples / wildlife / fish / mammals, marine / caribou, Porcupine / wildlife habitats / northern energy development / pollution, noise / bears

A 16 BEAUFORT SEA ENVIRONMENTAL ASSESSMENT AND REVIEW PROCESS (EARP) PANEL REPORT. A DIAND PERSPECTIVE.
Canada. Department of Indian Affairs and Northern Development.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1985. 38 pp.

333.823 1 DIAND Per

In this report, the opinions of the Department of Indian Affairs and Northern Development (DIAND), relative to the report of the Beaufort Sea Environmental Assessment and Review Process (BSEARP), are presented. Each entry contains the Panel's recommendations, DIAND's comments and a note explaining the action taken, or to be taken, to follow up on each recommendation.

DIAND / EARP / Beaufort Sea / BSEARP / environmental assessment / environmental assessment panels / government / legislation / regulations / regulatory agencies / NOGAP / ESRF / socio-economic impacts / oil spills / employment / hunting / trapping / fishing / wildlife / fish / birds / tankers / pipelines / pollution, oil / DFO / Mackenzie Delta, N.W.T. / PERD

A 17 BEAUFORT SEA ENVIRONMENTAL IMPACT STATEMENT; CITATIONS AND ABSTRACTS.
Arctic Science and Technology Information System.
Calgary, Alberta : Arctic Institute of North America, n.d. 23 pp.

PAM 1984-89

This pamphlet lists and summarizes the contents of the seven volume Beaufort Sea Environmental Impact Statement (EIS) as well as the set of 35 support documents thereto. Each entry is annotated, many in some detail.

Beaufort Sea / Mackenzie Delta, N.W.T. / environmental impact / EIS / Dome / Esso / Gulf / bibliographies & indices / hydrocarbon production / socio-economic impacts / Northwest Passage / Mackenzie Valley, N.W.T. / ecosystems, aquatic / pipelines / oil spills / tankers / drillships / drilling, offshore / whales / fish / wildlife / ice, sea

A 18 BEAUFORT SEA ENVIRONMENTAL MONITORING PROGRAM. PRELIMINARY SUMMARY REPORT FOR WORKSHOP II.
Canada. Department of Indian Affairs and Northern Development, Environmental Studies Division.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1983. 72 pp.

333.823 1 DIAND BEMP II

This report briefly summarizes the results of the second workshop in the Beaufort Environmental Monitoring Project (BEMP), for submission to the Beaufort Sea Environmental Assessment and Review Panel (BSEARP). The primary objective of this workshop was to establish preliminary research and monitoring priorities, through a detailed, interdisciplinary examination of twenty-one hypotheses regarding the potential impacts of hydrocarbon development on the ecosystem components of the Beaufort Sea. This preliminary document summarizes the hypotheses, conclusions, and proposed research and monitoring.

workshops / Beaufort Sea / BSEARP / DIAND / environmental monitoring / environmental assessment / ecosystems, aquatic / exploration / operations / whales / seals / bears, polar / seabirds / birds / native harvest / ducks / fish / pollution, noise / pollution, oil / socio-economic impacts / Beaufort Environmental Monitoring Project

A 19 **BEAUFORT SEA HYDROCARBON PRODUCTION PROPOSAL; INTERIM REPORT OF THE ENVIRONMENTAL ASSESSMENT PANEL TO THE FEDERAL ENVIRONMENTAL ASSESSMENT REVIEW OFFICE.**
Canada. Federal Environmental Assessment Review Office.
Canada. Federal Environmental Assessment and Review Process ; 19.
Hull, Quebec : Canada. Federal Environmental Assessment Review Office, 1982. 12 pp.

333.823 163 27 Fed

This interim report summarizes the progress of the Beaufort Sea Environmental Assessment Panel (BSEAP) in its consideration of Dome, Gulf and Esso's Beaufort Sea hydrocarbon production and transportation proposal. Under the auspices of the Federal Environmental Assessment and Review Office (FEARO), all proposed projects involving federal money or property, that are likely to have significant environmental effects, must be submitted to an environment assessment panel for review. It is reported that the BSEAP's main activity has involved the establishment of guidelines to assist Dome, Gulf and Esso in their preparation of an environmental impact statement (EIS) and public hearings in this regard are reviewed. The major concerns raised are detailed and the report concludes by outlining the BSEAP's planned future activities.

BSEAP / EIS / FEARO / Beaufort Sea / Dome / Gulf / Esso / environmental assessment panels / environmental assessment / government / hydrocarbon production / public hearings

A 20 **BIBLIOGRAPHY OF LIBRARY HOLDINGS RELATING TO THE BEAUFORT SEA AND ARCTIC OIL DEVELOPMENT, FISH AND WILDLIFE REGION LIBRARY.**
U.S. Fish and Wildlife Service, Alaska Region.
Anchorage, Alaska : U.S. Fish and Wildlife Service, Alaska Region, 1985. n.p.

016.5 USFWS

This computer print-out lists books, periodical reprints and reports on the impact of Beaufort Sea hydrocarbon development on the environment. The scope of the bibliography is very broad and includes the geography of the area as well as the general and specific effects on wildlife and the people of the area.

environmental impact / Beaufort Sea / hydrocarbon production / mammals / mammals, marine / birds / fish / native peoples / socio-economic impacts / wildlife habitats / aquatic habitats / geography / bibliographies & indices

A 21 BIBLIOGRAPHY OF REPORTS, PUBLICATIONS, INTERVENTIONS FROM THE PUBLIC FILE OF THE BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL.
E.M. MacDonald.
s.l. : Beaufort Sea Environmental Assessment Panel, 1984. various pag.

016.55 Mac

Prepared for the Beaufort Sea Environmental Assessment Panel (BSEAP), under contract to the Federal Environmental Assessment Review Office (FEARO), this bibliography includes reports, publications and interventions held in the BSEAP public file and reflects the organization of that document. Bibliography entries include reports produced for or by the BSEAP, formal submissions relative to the preparation of an environmental impact statement (EIS), and formal submissions or interventions.

bibliographies & indices / BSEAP / FEARO / Beaufort Sea / EIS / hydrocarbon production / environmental assessment

A 22 BIBLIOGRAPHY OF THE ENVIRONMENTAL AND ENGINEERING STUDIES ON THE ARCTIC COAST AND BEAUFORT AND CHUKCHI SEAS.
Arctic Environmental Information and Data Centre.
Anchorage, Alaska : University of Alaska, 1977. 1 microfiche.

MF AEIDC

Prepared for the U.S. Army, Corps of Engineers, this bibliography contains 130 citations, arranged alphabetically by author surname, listing environmental publications dealing with biological, social, and economic aspects and environmental engineering studies relative to the Arctic coast and the Beaufort and Chukchi Seas. The entries are not annotated.

bibliographies & indices / environmental impact / engineering, environmental / Beaufort Sea / Arctic Ocean / Chukchi Sea / socio-economic aspects / ecology, marine / ice, sea / Arctic Islands / aquatic habitats / biology, aquatic / AEIDC

A 23 THE BIOLOGICAL EFFECTS OF HYDROCARBON EXPLORATION AND PRODUCTION RELATED ACTIVITIES, DISTURBANCES AND WASTES ON MARINE FLORA AND FAUNA OF THE BEAUFORT SEA REGION.
ESL Environmental Sciences Ltd.
Beaufort EIS Support Document 1982.
Vancouver, British Columbia : ESL Environmental Sciences Ltd., 1982. 450 pp.

574.928 ESL

Prepared for Dome Petroleum Ltd., this support document summarizes existing information on the potential biological effects of activities, disturbances and wastes associated with hydrocarbon exploration and production. The primary emphasis of the report is on the biological resources of the Beaufort Sea region. Major sections of the report discuss common disturbances and disturbances associated with exploration and production drilling, storage and transportation, environmental emergencies and clean-up procedures. Each major section includes a list of references and a summary of the content of the section.

zooplankton / phytoplankton / benthic invertebrates / mammals, marine / seabirds / fish / biology, aquatic / pollution, oil / pollution, noise / drilling / Beaufort Sea / exploration / hydrocarbon production / transportation, marine / environmental impact / dredging / waste disposal / drilling fluids / blowouts / Dome / oil spills / dispersants / artificial islands / aquatic habitats / EIS

A 24 BIOLOGICAL OVERVIEW OF THE BEAUFORT SEA AND N.E. CHUKCHI SEA.
LGL Limited, Environmental Research Associates and ESL Environmental Sciences Limited.
Beaufort EIS Support Document 1982.
Vancouver, British Columbia & Toronto, Ontario : LGL Limited and ESL, 1982. various pag.

574.971 9 Bio

Dome Petroleum commissioned a series of background studies, to document the resources of the areas that might be affected by activity in the Beaufort Sea, as a first step in evaluating the environmental impact of oil and gas reserve development. This particular report provides an overview of the biological resources of the Beaufort and northeastern Chukchi seas. It is restricted to the known biological resources of marine areas, including Amundsen Gulf, to provide data for potential transportation routes. Illustrations are used throughout and each of the ten sections includes a list of references cited.

EIS / Beaufort Sea / Chukchi Sea / Dome / mammals, marine / birds / fish / plankton / ecosystems, aquatic / Alaska / biology, aquatic / ecology, marine / Amundsen Gulf, N.W.T. / natural gas / exploration / hydrocarbon production / ice, sea / environmental monitoring / transportation

A 25 BIOLOGICAL OVERVIEW OF THE NORTHWEST PASSAGE, BAFFIN BAY AND DAVIS STRAIT.
LGL Limited Environmental Research Associates.
Beaufort EIS Support Document 1982.
Toronto, Ontario : LGL Limited, 1982. various pag.

574.971 9 Bio

One of several studies commissioned by Dome Petroleum, this report provides an overview of the biological resources in the Northwest Passage, Baffin Bay and Davis Strait. The report describes the characteristics of the major biological components in the area but does not evaluate the potential impacts of the transportation plan, which would see ice-breaking oil tankers in operation year round. Considerable use is made of illustrations and eight of the ten main sections include a list of literature cited.

EIS / Dome / Northwest Passage / Baffin Bay, N.W.T. / Davis Strait, N.W.T. / mammals, marine / mammals / birds / fish / plankton / ice, sea / biology, aquatic / ecology, marine / ecosystems, aquatic / ducks / environmental monitoring

A 26 COMPREHENSIVE BIBLIOGRAPHY AND INDEX OF ENVIRONMENTAL INFORMATION FOR THE BELUGA-SUSTINA, NENANA, AND WESTERN ARCTIC COAL FIELDS, VOLS. I, II, III.
Eugene H. Buck, et al., Arctic Environmental Information and Data Center (AEIDC).
Anchorage, Alaska : University of Alaska, 1978-1979. 9 microfiche.

MF AEIDC

Presented in three volumes, this bibliography and index was compiled to provide increased access to environmental information pertinent to three major coal-producing areas in Alaska. Each volume contains seven sections: I, master bibliography containing the complete citation in accession number order; II, author index; III, geographic index; IV, maps of areas covered by the geographic index; V, earth sciences index; VI, biological index; VII, general keyword index.

AEIDC / bibliographies & indices / Alaska / coal / energy alternatives / environmental protection / botany / biology / ecology / geology / archaeology / geomorphology / Beluga-Sustina Coalfields, Alaska / Nenana Coalfield, Alaska / stratigraphy

A 27 CURRENT RESEARCH PROFILE FOR ALASKA 1983 AND 1984.
Arctic Environmental Information and Data Center (AEIDC).
Anchorage, Alaska : Arctic Environmental Information and Data Center, 1983, 1984. various pag.

500.979 807 2 Arc

This annual publication lists research conducted annually, in Alaska, in the physical, biological and related social sciences. Abstracts of Alaska research and research projects conducted in Canada, but relevant or applicable to Alaska, are included. The volume provides six indices - researcher name, affiliation, funding agency, subject, region and geographic location.

Alaska / bibliographies & indices / geophysics / geology / biology / socio-economic aspects / technology / northern energy development / archaeology / health care / education / land use / AEIDC

A 28 [DEMPSTER LATERAL APPLICATION: CONSULTANTS' PROPOSALS FOR TECHNICAL SUPPORT STUDIES, SERVICE AGREEMENTS AND RELATED CORRESPONDENCE].
Foothills Pipe Lines (Yukon) Limited.
Calgary, Alberta : Foothills Pipe Lines (Yukon) Limited, 1978. various pag.

330.971 91 FPL(Y)

This loose-leaf volume contains copies of fourteen documents relative to Foothills Pipe Lines (Yukon) Limited's (FPL(Y)) proposal to construct the Dempster Lateral Gas Pipeline. Included are outlines and proposals for technical support studies, service agreements and related correspondence.

FPL(Y) / Dempster Lateral Gas Pipeline / environmental impact / pipeline construction / socio-economic aspects / fisheries / wildlife

A 29 DEMPSTER LATERAL GAS PIPELINE PROGRESS REPORT NO. 1.
s.l. : s.n., 1978. various pag.

330.971 91 Dem

This volume contains copies of contracts, terms of reference and correspondence relative to various environmental studies conducted in conjunction with the planned Dempster Lateral Gas Pipeline. The specific studies concern the Porcupine caribou herd, revegetation of disturbed terrain, birds, waterfowl and general habitat evaluations.

Dempster Lateral Gas Pipeline / environmental assessment / caribou, Porcupine / waterfowl / revegetation / birds / wildlife habitats / pipelines / pipeline routes / reclamation

A 30 DRAFT ENVIRONMENTAL IMPACT STATEMENT: PROPOSED BEAUFORT SEA LEASE SALE 97.
U.S. Department of the Interior, Minerals Management Service, Alaska OCS Region.
s.l. : U.S. Department of the Interior, Minerals Management Service, [1987?]. various pag.

333.916 41 MMS

This draft environmental impact statement (EIS) discusses a proposal for oil and gas leasing in the Beaufort Sea Planning Area (approximately 21.2 million acres of Outer Continental Shelf (OCS) lands located in the Beaufort and Chukchi Seas). This extensive document analyses the potential effects of such a proposal on the environment, describes alternatives to the proposal, and presents major issues such as the effects of development on wildlife, fish, marine mammals and their habitats and the socio-economic impact on the peoples of the area. In addition to the main proposal, five alternatives are presented in considerable detail. This report describes the geology, meteorology, oceanography and biological resources of the area and discusses the environmental consequences of hydrocarbon activities, constraints such as sea ice, technology and oil spills under each alternative proposal. Maps are included, as well as tables and diagrams. The document is indexed, a glossary of acronyms is provided, and there is a comprehensive bibliography.

EIS / environmental impact / OCS / Beaufort Sea / Chukchi Sea / fish / birds / seabirds / bears, polar / whales / caribou / native harvest / socio-economic impacts / water quality / land use / recreation / tourism / geology / meteorology / oceanography / exploration / oil spills / pollution, oil / toxicity / ice, sea / resource-leasing / oil spill countermeasures / seals / walruses / pollution, noise / wildlife habitats / aquatic habitats / North Slope, Alaska / ecosystems, aquatic / benthos / nutrition / native peoples / caribou, Porcupine / Inupiat / Kaktovik, Alaska / Barrow, Alaska / Nuiqsut, Alaska / Wainwright, Alaska / hunting / trapping / employment

A 31 DRAFT TEXT FOR ENVIRONMENTAL SITE SPECIFIC ATLAS, ALASKA HIGHWAY GAS PIPELINE, YUKON SEGMENT.
Interdisciplinary Systems Ltd.
s.l. : Interdisciplinary Systems Ltd., 1978. 266 pp.

665.744 Dra

This draft manuscript provides the explanatory text for the environmental site specific atlas of the Yukon segment of the Alaska Highway Gas Pipeline (AHGP). Conflicts between the project and the environment are identified and recommendations for changes to the planned route are made where necessary. The environmental concerns examined are wide-ranging and comprehensive in nature.

AHGP / pipeline construction / environmental impact / wildlife habitats / fish / vegetation / birds / mammals / Alaska Highway / moose / ducks / bears, grizzly / natural gas / hydrocarbon production / waterfowl / maps / pipeline routes / rivers

A 32 EAMES NORTH REPORTS.
[sponsored by] Petro-Canada.
Eastern Arctic Marine Environmental Studies Program.
Calgary, Alberta : Pallister Resource Management Ltd., 1982.
142 MF.

574.509 719 9 Eam

This volume contains the Eastern Arctic Marine Environmental Study (EAMES) reports, in microfiche format, which present data on a wide scope of environmental and ecological aspects of the Baffin Bay and Lancaster Sound regions. Included are biological reports on birds, marine mammals, and the aquatic ecosystem and oceanography and ice reports. There is a list of citations, an abstract for each section of this extensive study, and a subject listing is provided.

EAMES / Baffin Bay, N.W.T. / Lancaster Sound, N.W.T. / ecosystems, aquatic / oceanography / ice, sea / seabirds / mammals, marine / plankton / benthos / icebergs / oil spills / fish / ecology, marine / Petro-Canada

A 33 AN ECOLOGICAL FRAMEWORK FOR ENVIRONMENTAL IMPACT ASSESSMENT IN CANADA.
Gordon E. Beanlands and Peter N. Duinker.
Halifax, Nova Scotia : Institute for Resource and Environmental Studies and Federal Environmental Assessment Review Office, 1983.
132 pp.

574.526 21 Bea

This report is the result of a project to determine the extent to which the science of ecology could contribute to the design and conduct of environmental assessment studies, and to recommend ways in which this could realistically be achieved. The project involved the active participation of environmental scientists and those who are responsible for the administration of assessment procedures in Canada. The report provides the history and background of the project, its findings and the recommendations of the participants. A detailed list of related references is included.

environmental impact / ecology / Arctic / environmental assessment / FEARO / ecology, marine

A 34 ECOLOGY AND ENVIRONMENTAL IMPACT ASSESSMENT: AN ANNOTATED BIBLIOGRAPHY.
Peter N. Duinker and Gordon E. Beanlands.
Halifax, Nova Scotia : Federal Environmental Assessment Review Office and the Institute for Resource and Environmental Studies, Dalhousie University, 1983. 40 pp.

016.5 Dui

This bibliography was prepared as part of a Dalhousie University Research Project on the ecological basis for environmental impact assessment in Canada. The approximately 200 entries in the bibliography are presented as a complement to the study, "An Ecological Framework for Environmental Impact Assessment in Canada" by the same two authors (note: refer to personal author index in this volume for citation). A subject index is included and the entries are arranged in alphabetical order by first author surnames.

environmental impact / environmental assessment / FEARO / ecology / ecology, marine / Arctic / bibliographies & indices

A 35 "Environmental and Performance Monitoring for Offshore Exploration Structures."
B.C. Dixit, G.R. Pilkington and F.J. Eley.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

The authors of this paper emphasize the necessity of environmental monitoring to identify factors that would impact on the safety and efficiency of offshore drilling operations. Hazardous conditions, which affect offshore drilling, are described as well as the resulting operational response, using BeauDril's Kulluk system operating in the Beaufort Sea as an example. The instrumentation presently being used to monitor the environment is also described here.

workshops / drilling, offshore / oil rigs / safety measures / waves / ice, sea / environmental monitoring / Beaufort Sea / BeauDril / Kulluk / climatology / ice management / technology

A 36 "Environmental Aspects of Arctic Marine Transportation and Development."
E.F. Roots.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee (CARC), 1979.
pp. 69-92.

330.971 9 Mar

In discussing the development and operation of marine transportation systems as an essential component of the future development of Arctic Canada, this author examines industry's state of knowledge and policies as they apply to Arctic regions, specifically in terms of environmental conditions. The distinctive features of the Arctic environment are described, including weather systems, sea ice and icebergs, biological factors and oceanography. The author examines the types of environmental information available and how this information should be used in decision-making relative to Arctic marine transportation.

conferences / CARC / transportation, marine / Arctic / northern energy development / environmental protection / ice, sea / oceanography / climatology / biology / icebergs

A 37 "Environmental Assessment."
P. Solomon.
In PROCEEDINGS OF THE SIXTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 17-20, 1977.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1977. pp. 5-10.

333.823 05 Arc 1977

In this paper, the speaker addresses what he considers is a communications gap, between government and industry, with respect to environmental concerns. He discusses his view that industry has recognized the value of pragmatic environmental impact assessments in the decision making process, but adds that, for national policy, these assessments are the responsibility of government, with input from industry and academic institutions.

environmental assessment / government / regulatory agencies / communications / public hearings / workshops / APOA / CPA

A 38 ENVIRONMENTAL ASSESSMENT OF THE ALASKAN CONTINENTAL SHELF. FINAL REPORTS OF PRINCIPAL INVESTIGATORS. VOLUME 7. BIOLOGICAL STUDIES. BEAUFORT SEA BARRIER ISLAND-LAGOON ECOLOGICAL PROCESS STUDIES: FINAL REPORT, SIMPSON LAGOON.
LGL Ecological Research Associates, Inc. and LGL Environmental Research Associates.
s.l. : U.S. Dept. of Commerce. National Oceanic and Atmospheric Administration and U.S. Dept. of Interior. Bureau of Land Management, 1980. 678 pp.

333.916 41 Env v. 7

The subject focus of this study is the geological, oceanographic, and ecological processes that support vertebrate species of primary interest to humans, and that are speculated to be vulnerable to hydrocarbon development activities in the Beaufort Sea. Physical processes studied include formative mechanisms of coastal landforms, water circulation and exchange patterns, and transport and delivery patterns of materials carried by water. Bird species in the coastal environment are discussed in terms of their feeding, resting, molting and nesting habits as well as their vulnerability to human activities. The importance of the anadromous fish species (Arctic and least cisco, Arctic char) and some marine species, including Arctic cod, for human consumption as well as ecological purposes, is defined and there is some discussion on the food web. In general, it is concluded that the nearshore environment of the Beaufort Sea appears to be highly productive and that, based on ecological theory and data from this study, the ecosystem should be extremely resilient to human-induced disturbances. Monitoring programs, to assess the health of the species as opposed to population figures, are recommended as development proceeds.

geology / oceanography / ecology / Beaufort Sea / Simpson Lagoon, Alaska / Continental Shelf, Alaska / seabirds / shore birds / migration of birds / gulls / terns / ducks / Oldsquaws / fish / Arctic cisco / least cisco / Arctic char / Arctic cod / ecosystems, aquatic / ecology, marine / plankton / algae / nutrients / pollution, oil / pollution, industrial / environmental assessment / environmental impact

A 39 ENVIRONMENTAL ASSESSMENT OF THE ALASKAN CONTINENTAL SHELF. FINAL REPORTS OF PRINCIPAL INVESTIGATORS. VOLUME 8. BIOLOGICAL STUDIES. BEAUFORT SEA BARRIER ISLAND-LAGOON ECOLOGICAL PROCESS STUDIES: FINAL REPORT, SIMPSON LAGOON.

LGL Ecological Research Associates, Inc. and LGL Ltd. Environmental Research Associates.

s.l. : U.S. Dept. of Commerce. National Oceanic and Atmospheric Administration and U.S. Dept. of Interior. Bureau of Land Management, 1980. 359 pp.

333.916 41 Env v. 8

This volume is a continuation of the biological studies final report, volume 7 (see elsewhere in this bibliography). Invertebrate investigations, which were conducted in the Simpson Lagoon to study the seasonal and habitat distributions, abundances, biomasses, and life histories of organisms, identified as important food items for fish and birds, are described and the results discussed in some detail. As well, the production and nutrient aspects of algae, which are the suppliers of new fixed energy and carbon to the marine ecosystem, are examined. The volume concludes with a general discussion of the subject biological studies. Important components and processes are described, an analysis of probable impacts of development is presented, and an environmental monitoring strategy is proposed.

ecology / Beaufort Sea / Simpson Lagoon, Alaska / Continental Shelf, Alaska / benthic invertebrates / invertebrates / ecosystems, aquatic / algae / nutrients / environmental assessment / environmental impact / environmental monitoring / pollution, oil / plankton / phytoplankton

A 40 ENVIRONMENTAL CODE OF GOOD PRACTICE FOR GAS PIPELINE DEVELOPMENT.

Canada. Environmental Protection Service

Canada. Environmental Protection Service. Regulations, Codes, Protocols Report EPS 1-EC-77-1.

Ottawa, Ontario : Canada. Environmental Protection Service, 1977. 38 pp.

665.744 Can

This recommended environmental code outlines concerns and relevant consequences of actions and activities related to gas pipeline development, and makes recommendations with respect to mitigative measures. The document is organized into five basic sections: 1) introduction; 2) planning and design; 3) construction; 4) operations and maintenance; and 5) deactivation and abandonment. Guidance is provided on environmental considerations such as terrain stabilization, stream crossing requirements, erosion control, pollution control and other. A list of references is provided.

environmental protection / pipelines / pipeline construction / pipeline crossings / streams / erosion / pollution, noise / pollution, industrial / revegetation / waste disposal / environmental monitoring / slope stability

A 41 ENVIRONMENTAL GUIDELINES. PITS AND QUARRIES.
MacLaren Plansearch.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1982. 69 pp.

333.731 6 Mac

This handbook presents environmental guidelines for pit and quarry development and restoration in the Yukon and Northwest Territories. Operating procedures that are both sensitive to the environment and efficient to the operator are recommended. The handbook is designed for anyone who deals with planning, design and operation of pits and quarries in the lands north of 60°. Brief summaries of relevant legislation and regulations are included and a glossary is provided.

environmental protection / mining / regulations / legislation / Yukon Territory / Northwest Territories / land use / permafrost

A 42 "Environmental Impact of Linear Facilities."
N. Tywoniuk.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 20-25.

380.5 Nor

Linear facilities refer to all-weather roads, winter roads, railways, oil and gas pipelines, telephone lines and electrical transmission lines. In determining the cumulative impact of linear facilities on the environment, various methods of assessment are available and in this paper selected methods are reviewed. Summaries are included which provide information on the environmental impact of linear facilities on: terrain; hydrology; vegetation; aquatic systems; birds; and mammals. A short list of references is provided.

conferences / environmental impact / environmental assessment / roads / snow roads / railways / pipelines / permafrost / ground thermal regime / terrain disturbance / hydrology / vegetation / ecosystems, aquatic / fish / benthos / birds / mammals / fur-bearers / raptors

A 43 "Environmental Issues in Canadian Hydrocarbon Development, Offshore and Frontier Regions: A Special Interest View."
Richard Pratt.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 306-316.

333.823 05 Arc 1980

Representing the Canadian Nature Federation, this speaker outlines that organization's concerns about offshore and frontier development. Scientists have found areas of biological, geological and historical importance in frontier and offshore areas which, argues Mr. Pratt, require urgent and complete protection. The value of the preservation of significant ecosystems, protection of plant and animal habitats and education and research are stressed. Proposed ecological reserves, to protect wildlife populations influenced by environmental and human disturbances, are discussed. Some aspects of the environmental impact and review process are criticized and federal government policy in this regard is considered. A list of references is included.

environmental impact / northern energy development / Beaufort Sea / Arctic / drilling, offshore / EARP / wildlife habitats / aquatic habitats / environmental assessment / government / vegetation / ecology / Canadian Nature Federation / wildlife / ecosystems, aquatic / APOA

A 44 ENVIRONMENTAL OPERATING GUIDELINES: HYDROCARBON WELL-SITES IN NORTHERN CANADA.
Spencer Environmental Management Services Ltd.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1986. 38 pp.

333.731 6 Spe

This document, designed to assist land use operators, land use managers, and inspectors, presents environmental operating guidelines for hydrocarbon well-sites in Yukon and Northwest Territories. Well-site planning, construction, operation, abandonment and restoration are discussed as well as current operational guidelines that afford environmental protection. The guidelines refer to the various terrain types, permafrost conditions, geographical areas and seasons of operation in northern Canada. There is a list of references and the document is illustrated.

land use / environmental protection / operations / exploration / Yukon Territory / Northwest Territories / construction / reclamation / permafrost / tundra / drilling / northern energy development / waste disposal / drilling fluids / revegetation / government / legislation / regulations

A 45 "Environmental Research in Frontier Regions."
Rolph Davis.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
The Arctic Petroleum Operators' Association (APOA), et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 35-43.

333.823 15 Fro

This author discusses the relevance and timeliness of environmental research conducted in support of major frontier hydrocarbon developments. The role of government in such projects and the types of research conducted are examined. Reference is made to major offshore hydrocarbon proposals in the Beaufort and Labrador Seas, as well as the Mackenzie Valley Pipeline and Lancaster Sound drilling project. The environmental assessment and review process is touched on briefly, as is the role of public interest groups, and public hearings, in the resolution of environmental concerns.

workshops / Beaufort Sea / Labrador Sea / public hearings / Lancaster Sound, N.W.T. / Mackenzie Valley Gas Pipeline / environmental assessment panels / government / hydrocarbon production / drilling, offshore / CARC / APOA

A 46 ENVIRONMENTAL REVIEW OF THE 1979 BEAUFORT SEA OFFSHORE DRILLING PROGRAM AND OVERVIEW OF 1976-79.
Canada. Department of Indian Affairs and Northern Development. Northern Affairs Program.
INA Publication No.: QS-8248-040-EE-A1.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1980. 55 pp.

333.823 163 27 Can

This report provides a summary of the environmental factors addressed in the annual reviews, carried out from 1976 through 1979, of Dome Petroleum's drilling program in the Beaufort Sea. Beginning with Dome's drilling subsidiary Canmar's initial deployment of two drillships in August 1976, the report looks at significant events, year by year, related to environmental operating conditions, liability provisions in case of pollution and the inspections carried out by federal oil and gas inspectors. In essence a report card on Canmar's compliance with environmental regulations, this document includes numerous tables of technical data summarizing the results of tests carried out by the government inspectors.

environmental protection / pollution, oil / Canmar / Dome / Beaufort Sea / drillships / oil spill countermeasures / dredging / Kopanoar / waste disposal / government

A 47 ENVIRONMENTAL STATEMENT. PUBLIC INTEREST. SUMMARY.
Polar Gas Limited.
s.l. : s.n., n.d. 19 pp.

333.73 Pol

This document is a summary of the Environmental Statement prepared by Polar Gas Limited in support of applications to the National Energy Board (NEB) for a Certificate of Public Convenience and Necessity authorizing the construction of pipeline facilities and to the Department of Indian Affairs and Northern Development (DIAND) for authorization to use land. A background to the Polar Gas project is given and numerous aspects of environmental impact are discussed. Maps are provided to show the proposed pipeline route, environmental features of Canada and environmental and land use features and concerns along the route.

Polar Gas / pipeline routes / environmental impact / land use / NEB / DIAND / environmental protection / mammals / birds / fish / wildlife / pipeline facilities / low water crossings / pipeline crossings / pipeline co. applications

A 48 "Environmental Studies Panel Workshop: Objectivity/Application Panel: Results of Panel Discussion."
John Hnatiuk and Allen Milne.
In PROCEEDINGS OF THE EIGHTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 7-9, 1979.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Calgary, Alberta : Arctic Institute of North America, 1979.
pp. 88-100.

333.823 05 Arc 1979

The conclusions reached by the Environmental Studies Panel workshop portion of the subject workshop are detailed in this article. The content of the discussions held by the participants is presented in some detail, and the items on which general consensus was reached are summarized. These include endorsement of the Joint Industry/Federal Government Steering Committee on Problems of Hydrocarbon Development and the encouragement of public involvement in the environmental study process at an early stage.

environmental assessment / environmental assessment panels / government / hydrocarbon production / public hearings / workshops / APOA / CPA

A 49 "ESRF (Environmental Studies Revolving Funds)."
Maurice Ruel.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 113-118.

333.823 05 Arc 1984

This paper provides an overview of the structure and organization of the Environmental Studies Revolving Funds (ESRF). The status of the program itself is discussed in view of its relative newness, as well as the committee status, administration, the 1983 budget and studies, the forecast for the 1984 budget and a timetable for 1985 activities. The purpose of the ESRF is to fund environmental and social studies in order to decide whether oil and gas exploration or development activities, on Canada lands, should be authorized. Tables are presented to illustrate the subjects addressed by the speaker.

ESRF / financing / environmental monitoring / environmental assessment / socio-economic aspects / hydrocarbon production / exploration / natural gas / workshops / APOA / CPA-OOD

A 50 "The ESRF Experience."
Olav Loken.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 118-120.

333.823 05 Arc 1984

The author of this brief paper is Director of the northern portion of the Environmental Studies Revolving Funds (ESRF) and the paper consists of an overview of the first year of operation of the ESRF. From the perspective of management, the author reviews the achievements reached and the experience gained in establishing and running this program.

ESRF / financing / environmental monitoring / socio-economic aspects / environmental assessment / hydrocarbon production / exploration / natural gas / workshops / APOA / CPA-OOD

A 51 "ESRF from an industry point of view."
G.H. Jones.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association - Offshore Operators' Division (CPA-OOD), 1985. pp. D9 - D11.

333.823 05 Arc 1985

In this paper the projects of the Environmental Studies Revolving Funds (ESRF), over the preceding two years, are reviewed. The paper is written from the perspective of industry and, in particular, it is pointed out that industry wishes to be satisfied that projects meet the Fund's criteria. Secondly, the manner in which industry is assessed costs by ESRF, and the principles behind these assessments, are discussed.

ESRF / COGLA / legislation / financing / oil companies / exploration / environmental monitoring / workshops / APOA / CPA-OOD

A 52 "ESRF - perceptions and realities."
M.J. Ruel.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. D11 - D14.

333.823 05 Arc 1985

The prime purposes of the Environmental Studies Revolving Funds (ESRF) are set out in this paper. The ESRF's commitment to provide a national mechanism to distribute costs of environmental studies, to ensure an adequate level of studies, and to ensure that results of studies are readily available, are discussed. The budget and administrative organization of the ESRF is examined and a list of published and pending research is included.

ESRF / environmental assessment / COGLA / CPA-OOD / oil companies / financing / exploration / environmental monitoring / technology / APOA / workshops

A 53 AN EVALUATION OF THE ACCUMULATED ENVIRONMENTAL IMPACTS TO BE POTENTIALLY EXPERIENCED BY THE YUKON TERRITORY WITH CONSTRUCTION OF THE FOOTHILLS OIL AND GAS PIPELINES.
Terry McComas.
Vancouver, British Columbia : s.n., 1980. various pag.

333.710 971 92 McC

The primary areas of emphasis in this report are three-fold: 1) identification of accumulated resource or ecological impacts likely to be experienced in the Yukon with gas or oil pipeline construction as proposed by Foothills Pipe Lines (Yukon) Ltd. (FPL(Y)); 2) the devising of means by which these impacts might be reduced or eliminated, through changes in either proposed alignment or scheduling; and 3) investigation of the literature to determine the likely ecological impact of a northern freshwater crude oil spill. The report was prepared for the Department of the Environment (DOE)/Department of Fisheries and Oceans (DFO) Task force on the Northern Pipeline Program.

environmental impact / pipeline construction / ecology / Yukon Territory / FPL(Y) / pollution, oil / oil spills / DOE / DFO / pipeline routes / pipeline design / birds / wildlife / fish

A 54 FAIRNESS IN ENVIRONMENTAL AND SOCIAL ASSESSMENT PROCESSES: PROCEEDINGS OF A SEMINAR, THE BANFF CENTRE, FEBRUARY 1-3, 1983.
Canadian Institute of Resources Law and the Federal Environmental Assessment Review Office.
edited by Evangeline S. Case, Peter Z.R. Finkle and Alastair R. Lucas.
Canadian Institute of Resources Law. Proceedings 2.
Calgary, Alberta : Canadian Institute of Resources Law, University of Calgary, 1983. 125 pp.

333.710 971 Fair

This volume contains the text of papers presented at the subject seminar. The object of the seminar was to promote a critical review of fairness in environmental and social assessment processes by the major affected interests - assessment agencies, industry, government and public or special interest groups. A list of registrants is provided.

conferences / environmental assessment / socio-economic aspects / FEARO / NEB / public hearings / government / petroleum industry / environmental assessment panels / legal aspects

A 55 "Government Research Programs and Industry: ESRF."
Ewan Cotterill.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 120-123.

333.823 05 Arc 1984

This paper identifies some problems which arose during the first year of operation of the Environmental Studies Revolving Funds (ESRF). Industry's involvement in the ESRF and some observations concerning areas of change being contemplated are discussed - for example the implementation of better mechanisms to ensure a broader range of input into the determination of the research needs and priorities. Finally, the author reviews the role of the ESRF's Social North Program Study Committee, of which he is Chairman.

ESRF / financing / environmental monitoring / socio-economic aspects / environmental assessment / hydrocarbon production / natural gas / exploration / workshops / APOA / CPA-OOD

A 56 "The Habitable Planet."
R.G.S. Currie.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 4-18.

333.823 05 Arc 1978

In this address, the speaker presents a philosophical view of the general and political problems which underlie the task of developing the resources of the Arctic in an acceptable manner. The speaker suggests that Canadians can no longer afford to address the issues of development and ecological protection through an adversary system; rather the proponents must each view the other as a partner in arranging interface between industrial development and the natural world.

northern development / environmental protection / ecology / Berger Report / Arctic / northern energy development / hydrocarbon reserves / workshops / APOA / CPA

A 57 "A History of Environmental Studies in Canada Lands."
A.E. Pallister.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA).
Calgary, Alberta : Canadian Petroleum Association, 1983. pp. 9-29.

333.823 05 Arc 1983

This paper examines the history of environmental studies in Canada and discusses the role and contribution that the Environmental Studies Revolving Funds (ESRF) can make towards implementation of the recommendations of the Senate Special Committee on the Northern Pipeline (which recommendations call for new initiatives in the decision-making process).

workshops / ESRF / history / environmental assessment / government / safety measures / environmental monitoring / environmental assessment panels / CPA / EPOA / APOA

A 58 THE IMPACTS OF PIPELINES ON FISH AND WILDLIFE: AN ANNOTATED BIBLIOGRAPHY.
The Northern Pipeline Agency: B. Vogel.
s.l. : The Northern Pipeline Agency, 1980. 86 pp.

016.544 Nor

This annotated bibliography lists 144 citations, in alphabetical order by author. The bibliography serves to review and assess scientific information on the disturbance of fish and wildlife caused by the construction and operation of pipelines, and to list available relevant information on the impacts of pipelines. A detailed introduction discusses the topic, concluding that construction and operation of a pipeline is possible with a minimum of long-term environmental disruption as long as special precautions and planning take place. The bibliography includes a subject index.

bibliographies & indices / pipelines / pipeline construction / environmental impact / fish / mammals / wildlife habitats / ecology / ecology, marine / aquatic habitats / pollution / pollution, noise / pipeline routes / northern energy development

A 59 INITIAL IMPACT ASSESSMENT: DEMPSTER CORRIDOR.
Alaska Highway Pipeline Panel.
Winnipeg, Manitoba : Alaska Highway Pipeline Panel, 1979.
various pag.

333.710 971 91 AHPP

The Alaska Highway Pipeline Panel is an autonomous group financed by Foothills Pipe Lines Ltd. (FPL). This report presents the Panel's view of the potential biological, physical and socio-economic impacts of the proposed Dempster Highway gas pipeline. Some emphasis is placed on the Panel's concerns for the continued survival of the Porcupine caribou herd. In addition to general recommendations, the need for an effective management system to avoid severe and unnecessary damage to the environment, prior to future industrial development in the Mackenzie Delta and Beaufort Sea regions, is stressed.

Alaska Highway Pipeline Panel / Dempster Lateral Gas Pipeline / environmental impact / environmental protection / socio-economic impacts / caribou, Porcupine / regional planning / FPL / native peoples / mammals / birds / fish / vegetation / water quality / air quality / thawing / permafrost / lakes / streams / land use / pollution, oil / blowouts / oil spills

A 60 INITIAL IMPACT ASSESSMENT: DEMPSTER CORRIDOR. BACKGROUND REPORT I. PHYSICAL AND BIOLOGICAL ENVIRONMENTS - DEMPSTER AND KLONDIKE SEGMENTS.
Interdisciplinary Systems Ltd.
Winnipeg, Manitoba : Alaska Highway Pipeline Panel, 1978. 540 pp.

333.710 971 91 AHPPb v. 1

This study describes the major potential environmental problems that could arise in the Dempster Corridor as a result of: 1) public use of the Dempster Highway; 2) development of the Dempster Lateral Gas Pipeline; and 3) both activities in combination. The research reported in this volume presents the results of preliminary field and office studies carried out to assist the Alaska Highway Pipeline Panel in its initial environmental evaluation of future activities within the Dempster Corridor in the Yukon and Northwest Territories. Each of the nine sections addresses a specific component of the environment, presenting a general description, identification of potential conflicts and recommendations to lessen adverse effects.

geology / frost heaving / permafrost / seismicity / erosion / water quality / streams / lakes / air quality / mammals / birds / fish / vegetation / land use / archaeology / ecology / recreation / environmental impact / Dempster Corridor / Dempster Highway / Dempster Lateral Gas Pipeline / Klondike Highway / Alaska Highway Pipeline Panel / Yukon Territory / Northwest Territories

A 61 INITIAL IMPACT ASSESSMENT DEMPSTER CORRIDOR. BACKGROUND REPORT II. PHYSICAL AND BIOLOGICAL ENVIRONMENTS - NORTH DELTA SEGMENT.
Interdisciplinary Systems Limited
Winnipeg, Manitoba : Alaska Highway Pipeline Panel, 1978. 327 pp.

333.710 971 91 AHPPb v. 2

The Alaska Highway Pipeline Panel was established in 1976 to study and report on the physical, biological and human environmental implications of construction and operation of the proposed Alaska Highway gas pipeline in the Yukon Territory. This report addresses the effects of pipeline development on the North Delta Segment of the Dempster Corridor. Nine research reports dealing with specific components of the environment are included: land, water, air, mammals, birds, fish, vegetation, heritage and land use. Each report begins with a description of the problems of pipeline development in relation to various parameters, presents the environmental setting and problem definition for each parameter and gives conclusions and recommendations to control or mitigate potential impacts.

Alaska Highway Pipeline Panel / environmental impact / FPL / Yukon Territory / Dempster Corridor / permafrost / slope stability / seismicity / frost heaving / water quality / lakes / streams / air quality / mammals, marine / reindeer / bears / fur-bearers / birds / ducks / swans / geese / raptors / fish / whitefish / vegetation / tundra / land use / archaeology / recreation / ecology / AHGP

A 62 LANCASTER SOUND.
Helen Gerson and Richard Gerson.
Toronto, Ontario : World Wildlife Fund Canada and Canada. Department of Fisheries and Oceans, 1986. 22 pp.

574.971 95 Ger

Lancaster Sound, N.W.T., is home to large numbers of birds, seals, whales and polar bears, many of which are harvested by the Inuit living in that area. This booklet describes the migration routes, population sizes, and ecosystems vital to the survival of these species, as well as ice conditions, and currents, all of which may affect their habitats. The booklet is illustrated and the text is presented in both English and Syllabics.

Lancaster Sound, N.W.T. / seabirds / seals / whales / bears, polar / native harvest / Inuit / migration of birds / migration of fish / ecosystems, aquatic / phytoplankton / zooplankton / walruses / ice, sea / currents / aquatic habitats

A 63 LAND USE GUIDELINES. ACCESS ROADS AND TRAILS.
Hardy Associates (1978) Ltd.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 49 pp.

333.771 6 Har

Prepared for the Northern Affairs Program, Department of Indian Affairs and Northern Development (DIAND) this handbook presents land use guidelines for the planning, development, operation and abandonment of access roads and trails in the Northwest Territories and Yukon Territory. Written for contractors, operators and inspectors of access roads and trails, the document explains the rationale behind many of the terms and conditions attached to land use permits and demonstrates that procedures that are considerate of the environment can also be efficient for the operator. In addition, a brief summary of the legislation and regulations which apply to road development is provided.

DIAND / land use / roads / road construction / Northwest Territories / Yukon Territory / legislation / regulations / permafrost / transportation / snow / environmental protection

A 64 LAND USE GUIDELINES. MINERAL EXPLORATION. YUKON AND NORTHWEST TERRITORIES.
Canada. Department of Indian Affairs and Northern Development.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1983. 52 pp.

333.731 6 DIAND

This booklet is a synthesis of techniques and guidelines for minimizing environmental damage during mineral exploration in the Yukon and Northwest Territories. It contains information on a range of topics from how to apply for a land use permit to proper procedures for abandoning an operational site. The content is designed to help operators understand and comply with Territorial land use regulations, and in general to assist operators in carrying out their activities so that the least amount of damage to the environment results. The booklet contains two main sections: background to environmental protection; and minimizing environmental damage. It is illustrated and a short reading list is provided.

environmental protection / Northwest Territories / Yukon Territory / exploration / land use / regulations / legislation / DIAND / mining

A 65 MACKENZIE ENVIRONMENTAL MONITORING PROJECT 1985-1986 FINAL REPORT.
LGL Environmental Research Associates.
s.l. : LGL Environmental Research Associates, 1986. 308 pp.

333.823 16 LGL

This unpublished report was prepared for the Department of Indian Affairs and Northern Development (DIAND), Department of the Environment (DOE), Department of Fisheries and Oceans (DFO), Government of the Northwest Territories (GNWT) and the Yukon Territorial Government (YTG). This group initiated the Mackenzie Environmental Monitoring Program (MEMP) which monitors the terrestrial and freshwater environment of the Mackenzie Delta and Mackenzie Valley. The MEMP addresses concerns that hydrocarbon development activities in the Beaufort Sea may result in adverse environmental impacts. This report summarizes the results of the first year of the MEMP (March 1985 to March 1986).

DIAND / DOE / YTG / MEMP / Mackenzie Delta, N.W.T. / Mackenzie Valley, N.W.T. / Beaufort Sea / hydrocarbon production / exploration / environmental impact / ecosystems, aquatic / ecology / wildlife / wildlife habitats / fish / aquatic habitats / mammals / mammals, marine / birds / pipelines / waterfowl / pollution, oil / socio-economic impacts / GNWT

A 66 MACKENZIE VALLEY PIPELINE INQUIRY REVIEW.
Envirocon Ltd.
Calgary, Alberta : Envirocon Ltd., 1976. 162 pp.

330.971 Env

This report, prepared for the Environmental Protection Service, Department of the Environment (DOE), consists of a short synopsis of each significant or contentious environmental issue identified in the Mackenzie Valley Pipeline Inquiry, held under the authority of Mr. Justice Berger. The synopses are the result of a review of the inquiry transcripts, community hearings, and other material tabled as evidence. Criteria applied in selecting significant or contentious issues include potential magnitude of threat to the environment, the amount of debate of the issue, and discussion of mitigative measures. Pipeline construction, operation, and related facilities and activities are highlighted in terms of their effects on fish, wildlife, forests, and general environmental conditions.

environmental protection / pipelines / Mackenzie Valley Gas Pipeline / Berger Report / public hearings / erosion / slope stability / fish / birds / caribou / fur-bearers / moose / muskoxen / whales / wildlife habitats / vegetation / ecosystems, aquatic / air quality / waterfowl / Dall sheep / mammals, marine / DOE / environmental impact

A 67 MONITORING OF TWO EXPLORATORY DRILLING SITES IN THE SHALLOW REGIONS OF MACKENZIE BAY. A REPORT TO THE INDUSTRY-GOVERNMENT WORKING GROUP "A" ON THE DISPOSAL OF WASTE DRILLING FLUIDS IN THE CANADIAN ARCTIC.
VOLUME #4.
S.E. Hrudey and J.D. McMullen.
s.l. : Canada. Environmental Protection Service, 1975. n.p.

628.168 3 Hrud

The first drilling operation from an artificial island in the coastal waters of the Beaufort Sea was conducted in September 1973. In response to the unique operating and waste disposal problems anticipated, a monitoring program was conducted by Imperial Oil Limited, in consultation with the Department of the Environment (DOE). This report examines the monitoring program at that site and at a second artificial island site commencing in December 1973. The drilling operations and operating practices are described, procedures are discussed, and the conclusions drawn are listed, with particular reference to the disposal of drilling fluids and water quality monitoring.

drilling, offshore / artificial islands / Imperial Oil / DOE / waste disposal / drilling fluids / environmental monitoring / Arctic / environmental impact / water quality / pollution, industrial / Beaufort Sea

A 68 NATURAL GAS: ENVIRONMENTAL AND TECHNICAL INFORMATION FOR PROBLEM SPILLS.
Canada. Environmental Protection Service.
Canada. Environmental Protection Service. Environmental and Technical Information for Problem Spills (EnviroTIPS) Manuals.
Ottawa, Ontario : Canada. Environmental Protection Service, 1984. 73 pp.

363.738 TIPS GAS

This manual provides comprehensive information on natural gas spills and is intended for use by spill specialists in designing countermeasures for spills. The focus is environmental but the document also examines commerce and production, material handling and compatibility, contaminant transport, and human health. A list of references cited, a bibliography and a list of abbreviations are included.

natural gas / pollution / LNG / tankers / pipelines / storage / natural gas processing plants / environmental impact / toxicity / environmental protection

A 69 OBSERVATIONS ON THE ENVIRONMENTAL MONITORING AND SURVEILLANCE OF THE ALYESKA OR TRANS-ALASKA PIPELINE.
D.G. Wright.
Canada. Department of Fisheries and the Environment. Fisheries and Marine Services Manuscript Report 1451.
Winnipeg, Manitoba : Canada. Department of Fisheries and the Environment, 1978. 26 pp.

333.823 1 Wri

Following the discovery of crude oil at Prudhoe Bay, Alaska in January 1968, an oil industry consortium, Alyeska Pipeline Service Company, proceeded to develop and construct a 1,290 km hot oil pipeline to the port of Valdez on Prince William Sound. This document presents a description of the pipeline and discusses many of the environmental considerations associated with its construction. Observations on the organizational structure and effectiveness of an environmental monitoring and surveillance team are provided. A series of notes and recommendations considered relevant to the design of any pipeline surveillance agency which may be required in Canada is included.

Prudhoe Bay, Alaska / Valdez, Alaska / Alyeska Pipeline Service Co. / pipeline construction / environmental impact / environmental monitoring / Alaska / pipeline facilities / oil spills

A 70 "Offshore Environmental Studies Panel."
G. Rempel.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 74-85.

333.823 05 Arc 1978

The results of the Offshore Environmental Studies Panel discussions, at the subject workshop, are presented in this paper. The purposes and scope of environmental studies, in support of environmental impact assessment for proposed developments, are addressed. As well, the panel considers the question of who should carry out the studies, how long they should take, how much they should cost, who should pay for them and who should determine the adequacy of the finished product.

environmental assessment panels / drilling, offshore / environmental assessment / northern energy development / APOA / CPA

A 71 OFFSHORE OIL AND GAS IN CANADA. WEST COAST ENVIRONMENTAL, SOCIAL AND ECONOMIC ISSUES.
Michael W. McPhee.
Vancouver, British Columbia : Westwater Research Centre, University of British Columbia, 1982. 83 pp.

333.709 711 3 McP

This study was written with a view to possible renewed hydrocarbon development off British Columbia's coast, and particularly with a view to ensuring that environmental, social and regional economic impacts would be anticipated, at the earliest stage, and taken into account in the planning and decision making process. The author reviews how the environmental assessment aspects of offshore petroleum exploration and development were dealt with in other jurisdictions and examines the likely impacts of such development on the environment and the people of the coastal regions of the Province.

British Columbia / drilling, offshore / pollution, oil / socio-economic aspects / environmental assessment / hydrocarbon production / transportation, marine / ecosystems, aquatic / seabirds / mammals, marine / fisheries

A 72 "Offshore Production, Evolution of Technology, Cook Inlet, Alaska."
Charles H. Baskin.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 66-82.

333.823 05 Arc 1980

This paper outlines some significant environmental conditions peculiar to the Upper Cook Inlet, Alaska, and describes various engineering and operational practices which were employed to satisfy the environmental requirements relative to oil and gas exploration and production in the area.

Cook Inlet, Alaska / natural gas / hydrocarbon production / environmental assessment / engineering, environmental / seismicity / climatology / drilling, offshore / tidal currents / ice, sea / oil rigs / APOA

A 73 "Oil Development and Wildlife."
Angus Gavin.
In THE NORTHERN GAMBLE: PROCEEDINGS [OF THE] SEVENTH NORTHERN RESOURCES CONFERENCE, WHITEHORSE, YUKON, OCTOBER 14-16, 1981.
Whitehorse, Yukon : s.n., 1981. pp. 49-55.

333.715 Nor 1981

This paper describes highlights of studies conducted by the author with a view to minimizing the impact of oil development on the coastal environment in the Prudhoe Bay area. While various wildlife species are touched on, emphasis is given to caribou as the most obvious inhabitant of the area.

Prudhoe Bay, Alaska / environmental impact / caribou / coastal zone management / vegetation / soils / permafrost / waterfowl / birds / mammals / fur-bearers / mammals, marine

A 74 PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
edited by F.R. Engelhardt.
London, England : Elsevier Applied Science Publishers Ltd., 1985.
281 pp.

363.738 2 Pet

This volume contains a selection of papers which present views of the current state of knowledge with respect to the fate and effects of hydrocarbon exploration and production in the Arctic environment. Each paper includes a list of references and a subject index is provided.

Arctic / hydrocarbon production / exploration / environmental impact / pollution, oil / ecology / ecology, marine / ecosystems, aquatic / biology, aquatic / microbiology / birds / fish / mammals, marine / benthic invertebrates / socio-economic aspects

A 75 PLANNING AND MANAGING ENVIRONMENTALLY SIGNIFICANT AREAS IN THE NORTHWEST TERRITORIES.
J.G. Nelson and Sabine Jessen.
Canadian Arctic Resources Committee (CARC). Northwest Territories series; monograph 1.
Waterloo, Ontario : Canadian Arctic Resources Committee and University of Waterloo, Faculty of Environmental Studies, 1984.
139 pp.

333.715 Nel

This discussion paper focuses on the development of a method for planning and managing environmentally significant areas in the Northwest Territories. The principal concern in this discussion is how to match such areas with appropriate actions and agencies so that each area can be managed in order to protect its wildlife, geology, scenic beauty or unique character. The importance of comprehensive land use planning is emphasized in this document. A list of references is provided and photographs and tables supplement the text.

land use / regional planning / Northwest Territories / environmental protection / geology / land claims / government / socio-economic aspects / regulatory agencies / CARC / ecology

A 76 POLAR GAS PROJECT. CATALOGUE OF RESEARCH PROJECT REPORTS.
Polar Gas Ltd., Environmental Department.
s.l. : Polar Gas Ltd., 1982. 32 pp.

016.5 Pol

The Polar Gas project was established in 1972 by a consortium of companies interested in the development of the frontier natural gas reserves discovered by Panarctic Oils in Canada's Arctic Islands. This catalogue lists environmental and socio-economic research reports published primarily in support of applications to government regulatory agencies for permission to construct a gas pipeline. Entries are grouped by year of publication.

Polar Gas / natural gas / Panarctic Oils / Arctic Islands / environmental impact / pipeline routes / socio-economic impacts / birds / fish / mammals / aquatic habitats / ecology / wildlife habitats / archaeology / ecology, marine

A 77 PRELIMINARY ASSESSMENT OF SEISMIC SOURCES AND SEISMICITY OF THE CANADIAN BEAUFORT SEA AND PRELIMINARY EVALUATION OF POTENTIAL BEHAVIOR OF SAND ISLANDS DURING EARTHQUAKES.
Woodward Clyde Consultants.
Beaufort EIS Reference Works 1982.
San Francisco, California : Woodward-Clyde Consultants, 1980.
65 pp.

551.22 Woo

Dome Petroleum commissioned this study in view of the company's plan to construct sand islands, in the Beaufort Sea, for exploration, drilling and/or production purposes. With the aid of maps, the results of an assessment of seismic sources and seismicity are summarized. There follows a review of Dome's suggested Seismicity Measurement Program. The major portion of this study concerns the effects on sand islands of earthquake activity. The composition of the proposed sand islands is discussed. Estimates of the most likely behavior patterns, and the level of shaking below which the integrity of the islands can be judged to be retained, are reported. Recommendations are included as is a list of references.

Dome / Beaufort Sea / EIS / earthquakes / seismicity / artificial islands / drilling, offshore / exploration / hydrocarbon production

A 78 A PRELIMINARY ASSESSMENT OF WATER POLLUTION FROM ABANDONED OIL AND GAS DRILLING SUMPS IN THE NORTHWEST TERRITORIES. A REPORT TO THE INDUSTRY-GOVERNMENT WORKING GROUP "A" ON THE DISPOSAL OF WASTE DRILLING FLUIDS IN THE CANADIAN ARCTIC. VOLUME #2.
S.E. Hrudey, J. Michalchuk and J.D. McMullen.
s.l. : Canada. Environmental Protection Service, 1974. 42 pp.

628.168 3 Hru

In view of the significant possibility of contact between unpolluted waters and drilling mud chemicals, as a result of current drilling fluids management practices, this study assesses the magnitude of any water pollution problems associated with abandoned sumps in the Mackenzie Delta and Arctic Islands. (The accepted practice in waste drilling fluid management for land based operations has been the construction of an excavated pit, or sump, to collect the waste. After completion of the well, the sump fluids freeze and the sump is backfilled.) This study identifies high concentrates of chlorides and sulphates in sump fluids, describes the methods used to conduct the assessment and presents observations and recommendations for improved waste disposal. Colour photographs illustrate the study and a short bibliography is included.

pollution, industrial / drilling fluids / waste disposal / environmental impact / Mackenzie Delta, N.W.T. / Arctic Islands / toxicology / water quality / environmental assessment / Northwest Territories

A 79 PROCEEDINGS OF THE SIXTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 17-20, 1977.
edited by J.G. Gainer, W.J. Logan, and D. Mackay.
sponsored by the Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1977. 129 pp.

333.823 05 Arc 1977

In this volume, the texts of papers and background materials from the subject workshop are reproduced. A number of invited papers on general aspects of the environmental effects of hydrocarbon development in the Canadian north are presented, followed by summaries of workshop discussions on environmental issues and oil spill technology. A list of registrants is included.

(Note: texts of relevant papers are given separate entries in this bibliography.)

APOA / CPA / hydrocarbon production / northern energy development / environmental protection / oil spill countermeasures / Arctic / Beaufort Sea / workshops

A 80 PROCEEDINGS OF THE WORKSHOP ON EFFECTS OF EXPLOSIVES USE IN THE MARINE ENVIRONMENT. JANUARY 29 TO 31, 1985, HALIFAX.
edited by G.D. Greene, F.R. Engelhardt and R.J. Paterson.
Canada Oil and Gas Lands Administration. Environmental Protection Branch. Technical Report No. 5.
s.l. : Canada Oil and Gas Lands Administration, 1985. 383 pp.

622.17 Wor

This volume presents abstracts, and full texts, of papers presented at the subject workshop. The speakers represent a variety of backgrounds including federal government departments, provincial and state agencies, oil exploration companies, explosives manufacturers and geophysical service companies. The subject content of the papers is focused on the use of explosives in marine seismic exploration and the environmental implications of such use.

workshops / geophysics / seismic exploration / explosions / fish / seabirds / mammals, marine / environmental impact / pollution, noise

A 81 A PROPOSED GUIDE FOR ESTABLISHING ENVIRONMENTAL MONITORING REQUIREMENTS FOR LINEAR PROJECTS ON LANDS NORTH OF 60°.
G.A. Yarranton and M. Yarranton.
s.l. : s.n., 1985. 141 pp.

333.710 971 Yar

This report sets out how the Department of Indian Affairs and Northern Development (DIAND) should proceed when determining environmental monitoring requirements in the course of reviewing proposals for major projects. Both the physical and biological components of the northern environment are considered. A list of references is included.

DIAND / environmental monitoring / northern energy development / government / regulations / environmental assessment / regulatory agencies / roads / pipelines / exploration / drilling / hydrocarbon production / forestry / mining

A 82 RECOMMENDED ENVIRONMENTAL STANDARDS FOR THE DESIGN AND CONSTRUCTION OF A MACKENZIE VALLEY PIPELINE.
Canada. Environmental Protection Service.
s.l. : Canada. Environmental Protection Service. Department of the Environment, 1976. 65 pp.

333.716 Can

This document contains advice from the Department of the Environment (DOE) on measures necessary to maintain environmental quality during the construction, operation and abandonment of a proposed Mackenzie Valley gas pipeline. General environmental protection measures are outlined, along with more specific constraints designed to protect particular elements of the environment during sensitive periods and in sensitive locations.

DOE / environmental protection / Mackenzie Valley, N.W.T. / Mackenzie Valley Gas Pipeline / geotechnology / hydrology / meteorology / vegetation / wildlife / fish / pipeline construction / pipeline facilities / waste disposal / transportation / safety measures / environmental monitoring / revegetation

A 83 REMOTE SENSING DATA SUMMARY: MACKENZIE AND DEMPSTER HIGHWAYS.
W.J. Aird.
Canada. Environmental Protection Service. Ecological Impact Appraisal and Control Division. Report EPS 3-EP-75-2.
Ottawa, Ontario : Canada. Department of the Environment, 1975. n.p.

912.719 Aird

This report documents the remote sensing data, stored in the National Air Photo Library (NAPL), which has been obtained to assist in the examination of the environmental effects of the Mackenzie and Dempster highways and provides guidance on how this data may be retrieved. A set of maps is included to identify two and ten mile wide highway corridors. The relationship between ground resolution and photographic scale is discussed with a view to assisting users in deciding if the photography available is of sufficient detail for their purposes. A worked example of the data retrieval procedure is given.

remote sensing / NAPL / Mackenzie Highway / Dempster Highway / maps / environmental impact

A 84 REPORT OF THE TASK FORCE ON NORTHERN CONSERVATION.
Task Force on Northern Conservation 1984.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 47 pp.

333.709 719 Can

The assignment of the Task Force on Northern Conservation was to develop a framework for the creation of a comprehensive conservation policy for the Yukon Territory and Northwest Territories, including both terrestrial and marine components. This report, which is illustrated throughout by the use of coloured photographs, presents the findings of the Task Force and its recommendations. Two components of a conservation strategy are identified - a process for the management of land and renewable resources and a system for the establishment of protected areas. A plan for the implementation of the strategy is included.

Yukon Territory / Northwest Territories / environmental protection / land use / native peoples / wildlife / birds / fish / mammals / mammals, marine / northern energy development / exploration / drilling, offshore / vegetation / rivers / lakes / tundra / geology / legislation

A 85 REPORT OF THE WORKSHOP ON AN ARCTIC MARINE CONSERVATION STRATEGY FOR THE DEPARTMENT OF FISHERIES AND OCEANS, MAY 6-8, 1985.
Arctic Offshore Development Committee.
ARCOD Working Paper 85-3.
s.l. : Arctic Offshore Development Committee, 1985. 63 pp.

333.72 ARCOD

This internal working paper (cited with the permission of the Arctic Offshore Development Committee (ARCOD)) summarizes the discussion and recommendations arising from the subject workshop. The stated purpose of the workshop was to develop information and ideas relating to the role of the Department of Fisheries and Oceans (DFO) in Arctic marine conservation and to develop some strategy options for DFO. The DFO's main responsibilities - sea, coast and inland fisheries, fishing and recreational harbours, hydrography and marine sciences and coordination of government policies and programs - are examined and the primary conclusions of the workshop participants, concerning the role of the DFO are included here.

ARCOD / DFO / workshops / environmental protection / fisheries / fishing / recreation / hydrography / Arctic / government / aquatic habitats / native peoples / native harvest

A 86 REVIEW OF NOISE ASPECTS OF E.I.S. FOR THE ALASKA HIGHWAY GAS PIPELINE PROJECT.
Harford, Kennedy, Wakefield Ltd.
Vancouver, British Columbia : Harford, Kennedy, Wakefield Ltd., 1979. 20 pp.

330.971 Har

This document presents a review of those aspects of the Environmental Impact Statement (EIS) for the Alaska Highway Gas Pipeline (AHGP) project which pertain to the possible impact of project operating and construction noise. Since noise generated by pipeline construction causes only temporary impact on a given area along its route, this review emphasizes the operating noise of the five initial and four future gas compressor stations which will produce moderate levels of steady noise and, infrequently, high levels of intermittent noise, throughout the working life of the proposed pipeline. Potential impacts of noise pollution on humans (residents, hikers, campers, for example), annoyance and community reaction to noise, and the effects on wildlife, most notably behavioral, are discussed. A short list of references is provided.

EIS / environmental impact / AHGP / pollution, noise / socio-economic impacts / wildlife / recreation

A 87 A REVIEW OF THE WILDLIFE AND MARINE RESOURCES OF THE CAPE PARRY REGION IN RELATION TO A FUEL STAGING AREA FOR SEA VESSELS NEAR CAPE PARRY, N.W.T.
M.A. Fraker, W.B. Griffiths and J.G. Ward.
Beaufort EIS Reference Works 1982.
Vancouver, British Columbia : LGL Limited, 1979. 74 pp.

333.954 1 Fra

In view of the proposed construction of a fuel staging facility near Cape Parry, N.W.T. by Canmar, on behalf of Dome Petroleum Limited, this report was prepared for submission to the Department of Indian Affairs and Northern Development (DIAND) as part of an environmental evaluation. The report summarizes available information on the abundance and distribution of wildlife and marine resources in the area, human utilization of these resources and the potential impacts of the development of the proposed facility, including mitigative procedures and research planned to supplement current information. A fairly comprehensive list of references is provided and the report includes some maps and tables.

Cape Parry, N.W.T. / Canmar / Dome / DIAND / EIS / environmental impact / Beaufort Sea / herbivores / caribou / moose / muskox / wolf / fox, Arctic / fox / bears, grizzly / ermine / wolverine / birds / seabirds / shore birds / ducks / gulls / terns / seals / bears, polar / whales / fish / benthic invertebrates / hunting / fishing / trapping / native peoples / native harvests / socio-economic impacts / land use

A 88 A REVIEW OF TREATMENT AND DISPOSAL OPTIONS IN THE CANADIAN ARCTIC FOR CUTTINGS CONTAMINATED WITH OIL-BASED DRILLING MUDS.
R.W. Drinnan et al.
s.l. : Environmental Studies Revolving Funds, 1986. 109 pp.

628.168 36 Dri

Funded by the Environmental Studies Revolving Funds (ESRF), this study has been prepared as an initial review of information on the treatment and disposal options in the Arctic for cuttings contaminated with oil-based drilling muds. The physical operating environment in the Arctic is reviewed briefly and parameters which strongly influence the movement of cuttings in the marine environment are discussed. These include wind, waves, currents, sedimentology and ice. Environmental considerations concerned with marine disposal, land disposal and incinerator options are addressed and the development of cuttings treatment systems is presented. A list of references is provided.

ESRF / drilling, offshore / drilling fluids / waste disposal / Arctic / wind / waves / currents / sedimentology / ice / hydrology / permafrost / geology / precipitation / pollution / environmental impact / benthos

A 89 "Risk Analysis in an Integrated Approach to Ecology with Special Reference to the Production and Transportation of Hydrocarbons."
R. de Malherbe and J.D. Kingham.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 207-235.

333.823 05 Arc 1980

After defining risk analysis - the process of quantifying, as far as possible, the risks presented by the operation of a particular facility - the authors of this paper then apply the theory to ecological problems relative to the environmental impact of production and transportation of hydrocarbons in the Arctic. A list of references is included with this paper as is a short bibliography.

hydrocarbon production / Arctic / risk analysis / transportation / transportation, marine / ecology / environmental impact / Berger Report / drilling, offshore / APOA

A 90 "Socio-economic/Environmental Assessment Panel: Results of Panel Discussion."
E.E. Cudby and J. Herity.
In PROCEEDINGS OF THE EIGHTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 7-9, 1979.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Calgary, Alberta : Arctic Institute of North America, 1979.
pp. 102-156.

333.823 05 Arc 1979

This lengthy article includes all the background materials, case studies, assumptions and assigned tasks which were given to participants at the Socio-Economic/Environmental Assessment panel workshop portion of the subject workshop. In summary, guidelines for socio-economic and environmental assessments are identified as well as the need to define the responsibilities within government, industry and community. The discussions which took place are reported in considerable detail and the closing remarks of each workshop participant are included.

environmental assessment panels / socio-economic aspects / government / oil companies / regulatory agencies / Beaufort Sea / Davis Strait, N.W.T. / Canmar / Esso / workshops / APOA / CPA

A 91 SUBMISSIONS TO THE YUKON PUBLIC HEARINGS PANEL [ALASKA HIGHWAY PIPELINE PANEL].
Canada. Department of the Environment and Canada. Department of Fisheries and Oceans.
Vancouver, British Columbia : Canada. Department of the Environment and Canada. Department of Fisheries and Oceans, 1979.
various pag.

330.971 DOE

This volume presents the texts of submissions by the Department of the Environment (DOE) and the Department of Fisheries and Oceans (DFO) to Yukon public hearings of the Alaska Highway Pipeline Panel. The two departments reviewed the Environmental Impact Statement (EIS) prepared by Foothills Pipe Lines (South Yukon) Ltd. (FPL(SY)) and the briefs presented here identify environmental concerns and deficiencies in the EIS and recommend future study requirements for subsequent planning and design phases of the Alaska Highway Gas Pipeline (AHGP). The main topics of concern are fisheries, wildlife, birds, climatology, hydrology and vegetation.

DOE / DFO / Alaska Highway Pipeline Panel / EIS / FPL(SY) / AHGP / Yukon Territory / fisheries / fish / wildlife / birds / climatology / hydrology / vegetation / wildlife habitats / water quality / pollution, noise / pipelines / pipeline crossings / erosion

A 92 SUMMARY ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACT STATEMENTS. ARCTIC PILOT PROJECT. PREPARED [IN] THE FALL OF 1978.
s.l. : s.n., 1978. 90 pp.

333.951 APP

The Arctic Pilot Project is designed to test the technical and economic feasibility of transporting natural gas from the Canadian Arctic Islands to eastern Canada, first of all by pipeline, south across Melville Island from the Drake Point gas fields, then liquified and shipped by two specially designed icebreaking liquified natural gas (LNG) carriers to the eastern terminal. This summary of the project's environmental statement describes components of the Arctic Pilot Project, the environmental setting, anticipated environmental impacts and mitigative measures to be used to reduce these impacts, and the implications for public safety. Included is a socio-economic policy statement which recognizes and addresses the concerns likely to arise among inhabitants of affected areas following the introduction of an industrial project of such size and scope.

Arctic Pilot Project / Arctic Islands / transportation / pipelines / Melville Island, N.W.T. / Drake Point, N.W.T. / natural gas / ice-breaking vessels / tankers / LNG / environmental impact / EIS / socio-economic impacts / employment / income and wages / native peoples / social services / land claims / communities

A 93 "A Survey of Field Techniques for the Study of Effects of Explosive Discharges in Marine Environments."
D.R. Murday.
In PROCEEDINGS OF THE WORKSHOP ON EFFECTS OF EXPLOSIVES USE IN THE MARINE ENVIRONMENT. JANUARY 29 TO 31, 1985, HALIFAX.
edited by G.D. Greene, F.R. Engelhardt and R.J. Paterson.
Canada Oil and Gas Lands Administration. Environmental Protection Branch. Technical Report No. 5.
s.l. : Canada Oil and Gas Lands Administration, 1985. pp. 289-309.

622.17 Wor

This paper provides a summary of monitoring approaches used in field studies of underwater detonations, as identified during a survey of over 40 papers on the subject. The monitoring programs fall into three broad areas of investigation: 1) scientific studies of physical and biological effects; 2) seismic geophysical studies; and 3) construction/demolition activities. An extensive list of references is included.

environmental monitoring / explosions / seismic exploration / geophysics / pollution, noise / workshops / bibliographies & indices / fish / seabirds / mammals, marine

A 94 TECHNICAL ENVIRONMENTAL GUIDELINES FOR OFFSHORE OIL AND GAS DEVELOPMENT.
edited by John T.E. Gilbert.
Tulsa, Oklahoma : Pennwell Books, 1983. 330 pp.

333.823 Gil

This book provides a working manual for personnel involved in the environmental aspects of planning and managing offshore hydrocarbon development activities. Guidelines are included for the early planning stage, coping with the physical offshore environment, dealing with ecological aspects of offshore development and preparing an oil spill contingency plan. This text also considers the various problems associated with protecting the marine life affected by drilling operations. Each chapter contains a list of references and the volume includes a glossary and an index.

drilling, offshore / hydrocarbon production / oil spill countermeasures / pollution, oil / ecology, marine / ecosystems, aquatic / fish / seabirds / mammals, marine / drilling fluids / benthic invertebrates

A 95 TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA).
Calgary, Alberta : Canadian Petroleum Association, 1983. 216 pp.

333.823 05 Arc 1983

This volume contains a collection of papers and recommendations from the Twelfth Annual Arctic Environmental Workshop. There are five separate themes represented - Environmental Studies Revolving Funds (ESRF), offshore safety, drilling fluids, Canada benefits and oil spills. A list of workshop participants is provided.

workshops / EPOA / APOA / CPA / ESRF / Canadian content / oil spill research / safety measures / environmental protection / drilling fluids / drilling, offshore / northern energy development

A 96 WILDLIFE OF THE MACKENZIE DELTA REGION.
Arthur M. Martell, Dawn M. Dickinson and Lisa M. Casselman.
Boreal Institute for Northern Studies. Occasional Publication Number 15.
Edmonton, Alberta : Boreal Institute for Northern Studies, University of Alberta, 1984. 214 pp.

591.971 96 Mar

This report presents an annotated list of all vertebrate wildlife species that occur, or have been reported, in the Mackenzie Delta region, with a brief discussion of some of the species. In each of the report's four main sections (mammals; birds; amphibians; and fish), there is an introduction, identification of species, annotated list of species and a list of relevant references. In addition there is a chapter on the vegetation of the area and an introduction which describes the geography of the region. A wildlife species index is provided as is a glossary.

whales / seals / bears, polar / caribou / beaver / fox, Arctic / muskrat / birds / waterfowl / amphibians / fish / Arctic cisco / Arctic char / grayling / Mackenzie Delta, N.W.T. / wildlife / bibliographies & indices / geography / vegetation / whitefish

BIRDS

A 97 BEAUFORT SEA ALLIANCE: PROTECTION FOR THE MACKENZIE DELTA. PRESENTATION TO BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL, INUVIK.
C. Eric Tull.
Westmount, Quebec : s.n., 1983. 64 pp.

333.823 16 Tul

This fairly technical submission includes material by various authors in support of the speaker's proposal. The speaker believes that the integrity of the Mackenzie Delta should be preserved in the interest of maintaining wildlife and waterfowl habitats and a great deal of technical data is provided to support this theory. Considerable use is made of tables and charts and selected references are provided.

Beaufort Sea Alliance / BSEAP / Mackenzie Delta, N.W.T. / environmental impact / environmental assessment panels / waterfowl / mammals / wildlife habitats

A 98 BREEDING BIRD SURVEY OF THE WHITEFISH STATION AREA, MACKENZIE DELTA, 1985.
J. Hawkings.
Canada. Canadian Wildlife Service, Pacific and Yukon Region. Technical Report Series No. 4.
Delta, British Columbia : Canada. Canadian Wildlife Service, Pacific and Yukon Region, 1986. 22 pp.

598.297 196 Haw

The Yukon portion of the Mackenzie Delta is one of two Yukon wetland areas listed as critical and having international importance in the North American Waterfowl Management Plan. The subject survey was conducted following a recommendation from the Beaufort Sea Environmental Assessment Panel (BSEAP) that inventories and research, on birds in regions outside of protected areas where oil and gas exploration and production may have an impact, should be ongoing. The objective of the study is to determine species composition, relative abundance, nesting density and breeding biology of birds in the Whitefish Station area of the western Mackenzie Delta. The results of the study are presented here and there is some related discussion. A list of references cited is provided.

Yukon Territory / Mackenzie Delta, Yukon / waterfowl / BSEAP / environmental assessment / Beaufort Sea / exploration / operations / birds / seabirds / shore birds / geese / ducks / gulls / terns / gyrfalcons / swans

A 99 "Ecology of Shorebirds in the Alaskan Beaufort Littoral Zone."
Peter G. Connors.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 403-416.

551.468 7 ALH

This paper presents information derived from ground-based censuses in a variety of tundra and littoral habitats specific to shore birds. Barrow, Fish Creek Delta and Prudhoe Bay were the three sites used and the data collected provide a quantitative and consistent description of seasonal changes in habitat use at different sites, and multi-year studies at the Barrow Site. The author discusses annual variations in movement, population densities and habitat use and also presents information from other published studies which extends the discussion to other sites along the Alaskan Beaufort Sea coast. A list of references is provided.

Beaufort Sea, Alaskan / shore birds / Barrow, Alaska / Fish Creek Delta, Alaska / Prudhoe Bay, Alaska / ecology / tundra / littoral zone / environmental monitoring

A 100 1981 WATERBIRD SURVEYS. MCKINLEY BAY, NORTHWEST TERRITORIES.
Miles Scott-Brown, Lynne Allen and Nicolas A. Roe.
Beaufort EIS Reference Works 1982.
Calgary, Alberta : Environmental Management Associates, 1981.
31 pp.

598.292 4 Sco

This report, prepared for Dome Petroleum Limited and the Canadian Wildlife Service, was conducted to document bird usage of McKinley Bay to monitor the impact of activities connected with a dredging program. The distribution and abundance of birds is described here, based on aerial surveys conducted during July and August 1981 at McKinley Bay.

EIS / environmental impact / Dome / Canadian Wildlife Service / birds / McKinley Bay, N.W.T. / dredging / ducks / diving species / swans / geese / seabirds / gulls / terns / shore birds

A 101 "Observations on the Effects of Seismic Exploration on Seabirds."
R. Stemp.
In PROCEEDINGS OF THE WORKSHOP ON EFFECTS OF EXPLOSIVES USE IN THE MARINE ENVIRONMENT. JANUARY 29 TO 31, 1985, HALIFAX.
edited by G.D. Greene, F.R. Engelhardt and R.J. Paterson.
Canada Oil and Gas Lands Administration. Environmental Protection Branch. Technical Report No. 5.
s.l. : Canada Oil and Gas Lands Administration, 1985. pp. 217-231.

622.17 Wor

The results of seabird observations made by Canterra Energy Ltd., during its southern Davis Strait seismic programs of 1980, 1981 and 1982, are presented in this paper. Explosives were used in 1980 and 1981 while the 1982 program used airguns and some very small charges. The effects of seismic activity on the abundance and frequency of sighting of seabirds is presented, along with reports of mortalities. A list of literature cited is included.

seabirds / Canterra Energy Ltd. / Davis Strait, N.W.T. / seismic exploration / explosions / environmental impact / workshops / pollution, noise

A 102 "The Pelagic and Nearshore Birds of the Alaskan Beaufort Sea: Biomass and Trophics."
George J. Divoky.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 417-437.

551.468 7 Ala

This report identifies and discusses the feeding habits and large scale distributions of the more numerous bird species that occupy the Alaskan Beaufort Sea from early August through mid-September.

Beaufort Sea, Alaskan / nutrition / seabirds / gulls / ducks / surface feeding species / diving species / fish / birds / crustaceans / benthic invertebrates / insects

A 103 SEABIRD SURVEYS IN THE BEAUFORT SEA, AMUNDSEN GULF, PRINCE OF WALES STRAIT AND VISCOUNT MELVILLE SOUND - 1980 SEASON.
T.W. Barry, S.J. Barry and B. Jacobson.
Beaufort EIS Reference Works 1982.
s.l. : s.n., 1981. 69 pp.

598.292 4 Bar

This environmental impact reference volume documents seven surveys of birds associated with marine and coastal areas of the Beaufort Sea, Amundsen Gulf, Prince of Wales Strait and Viscount Melville Sound, conducted during 1980. The stated purpose of the surveys was to determine times and places that are important to seabirds during the migration, nesting, molting, brood rearing and fall staging phases of their life cycles. The study rates the habitat used by marine or seabirds according to its sensitivity to environmental impact. Estimates of the portion of species population that might be affected by construction, transportation, or oil spills in connection with hydrocarbon exploration and development activities are included. A list of references cited is provided.

EIS / environmental impact / environmental assessment / Beaufort Sea / Amundsen Gulf, N.W.T. / Prince of Wales Strait, N.W.T. / Viscount Melville Sound, N.W.T. / migration of birds / seabirds / geese / ducks / gulls / terns / shore birds / oil spills / pollution, oil / pollution, noise

A 104 SPRING USE OF THE MACKENZIE RIVER BY SNOW GEESE IN RELATION TO THE NORMAN WELLS OILFIELD EXPANSION PROJECT.
P.N. Boothroyd.
Winnipeg, Manitoba : Canadian Wildlife Service, 1985. 211 pp.

333.958 Boo

Esso's oilfield expansion project at Norman Wells involves: construction of six production islands in the Mackenzie River to enable recovery from oil reserves under the river; drilling nearly 200 wells; and installing a pipeline gathering system for transportation purposes. The influence of this expansion project on spring use of local habitat by snow geese is examined in this study. Data collected during aerial surveys of the Mackenzie river provide the basis for determining snow goose use in the Norman Wells area compared to other upstream and downstream habitats. The degree to which various environmental factors influence snow goose migration and staging site selection is discussed and the results of on-site monitoring reviews conducted in 1983 and 1984 are reviewed. A list of references cited is provided.

Esso / Norman Wells, N.W.T. / operations / snow geese / wildlife habitats / migration of birds / environmental impact / environmental monitoring / Mackenzie River / artificial islands

FISH AND AQUATIC ECOSYSTEMS

A 105 AN ANNOTATED BIBLIOGRAPHY OF THE FISHES OF THE BEAUFORT SEA AND ADJACENT REGIONS.
Wilma E. Pfeifer.
Biological Papers of the University of Alaska ; No. 17.
Fairbanks, Alaska : University of Alaska, 1977. 79 pp.

016.597 091 632 27 Pfe

This bibliography was prepared as a reference base for further studies, in the subject area, particularly as they relate to the impact of hydrocarbon exploratory activities on the fish fauna. Entries are listed alphabetically by author and include all located references dealing with fishes of the Beaufort Sea and adjacent regions. Streams of the Arctic coast are included as well as a number of Russian references containing information on Beaufort Sea species in Russian waters.

bibliographies & indices / Beaufort Sea / fish / exploration / hydrocarbon production / ecology, marine / biology, aquatic / Alaska / ecosystems, aquatic / U.S.S.R. / Arctic

A 106 "An Annual Carbon Budget for an Arctic Kelp Community.
Kenneth H. Dunton.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 311-325.

551.468 7 Ala

This author reviews some previous research, conducted in temperate climates, which documents that marine algae make substantial contributions of carbon to coastal systems. Following this, the author summarizes the fraction of kelp carbon that is consumed by a common herbivore in the Beaufort Sea. Quantitative variations in the annual carbon input of kelp - caused by differences in winter light availability - are presented and compared to the carbon contributions made by benthic algae, ice algae and phytoplankton. This paper is illustrated and a list of references is provided.

algae / carbon / Beaufort Sea, Alaskan / herbivores / seaweed / phytoplankton / biology, aquatic / ecosystems, aquatic / biochemistry / benthos / Arctic

A 107 "The Arctic Marine Ecosystem."
M.J. Dunbar.
In PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
edited by F.R. Engelhardt.
London, England : Elsevier Applied Science Publishers Ltd., 1985.
pp. 1-35.

363.738 2 Pet

This article examines the marine ecosystem of the Arctic. The water masses are described in terms of the volume transport of currents, circulation patterns, and the influence of ice on the physical and biological subsystems. The biological processes examined include plant nutrients, the growth pattern and concentration of plants, and the actions of plankton, fish, birds and sea mammals.

Arctic / Arctic Ocean / Bering Sea / Beaufort Sea / Baffin Island, N.W.T. / hydrology / oceanography / currents / ice, sea / nutrients / zooplankton / herbivores / birds / mammals, marine / ecosystems, aquatic / phytoplankton / seaweed / fish / plankton / salinity / water temperature / biology, aquatic

A 108 "Assessing Environmentally Acceptable Levels of Metals in Drilling Products. The Beaufort Sea as a Case Study."
R.W. Macdonald and D.J. Thomas.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 137-156.

333.823 05 Arc 1983

In attempting to predict the probable effect of disposal of used drilling fluids, which contain heavy metals, the authors have restricted themselves to the Beaufort Sea and have tried to establish natural scales of time and space appropriate to the region. As well as reporting the results of experiments, the authors suggest how initial guidelines might be set, with due consideration of the general aims of disposal regulations, to prevent immediate toxicity, to prevent long term irreversible damage, and to prevent exposure of humans to pollutants. The importance of environmental monitoring, to enable revising of regulations should they fail in their objectives, is emphasized.

workshops / drilling fluids / waste disposal / drilling, offshore / pollution, oil / ecosystems, aquatic / metals / toxicity / environmental monitoring / sedimentation / Beaufort Sea

A 109 "An Assessment of the Colville River Delta Stock of Arctic Cisco-Migrants from Canada?"
B.J. Galloway et al.
In CONTRIBUTIONS TO THE SCIENCE OF ENVIRONMENTAL IMPACT ASSESSMENT: THREE PAPERS ON THE ARCTIC CISCO (COREGONUS AUTUMNALIS) OF NORTHERN ALASKA.
edited by D.W. Norton.
Biological Papers of the University of Alaska. Number 21.
Fairbanks, Alaska : Institute of Arctic Biology, University of Alaska, 1983. pp. 4-23.

333.956 1 Con

The purpose of this article is to interpret observed population changes of Arctic cisco in the Colville River Delta of Alaska. The authors describe the Deriso model, which is used to provide a predicted sequence of catch values that closely imitate the historical records. For the purpose of this research, the model was applied to 15 years of catch and fishing effort records from a local commercial fishery. The results of the research are presented here and discussed in terms of identifying environmental causes for fluctuations in population figures. As well, a theory that Arctic cisco in Alaska are representatives of a Canadian stock from the Mackenzie River is proposed and evidence relevant to this theory is examined. A list of references is included.

Arctic cisco / Alaska / Colville River Delta, Alaska / fish / fisheries / environmental impact / environmental assessment / ice, sea / Mackenzie River / Beaufort Sea

A 110 "Bacterial Populations of the Beaufort Sea."
Ronald M. Atlas and Robert P. Griffiths.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 327-345.

551.468 7 Ala

This paper discusses studies which consider the bacteria that occur in the Beaufort Sea with respect to their numbers, diversity, physiological adaptations, metabolic activities, and the potential impact of oil and gas development on them. It is explained that since the Beaufort Sea is ice-covered for much or all of the year and has continuous sunlight during summer and a continuous darkness during winter, the bacteria living in Arctic ecosystems must adapt to these conditions. The tests conducted for this study are described and the results are presented in written and tabular formats. A list of references is included.

Beaufort Sea, Alaskan / ecosystems, aquatic / bacteria / microbiology / Continental Shelf, Alaska / environmental assessment / northern energy development / ecology, marine / Alaska

A 111 A BASELINE CHEMICAL SURVEY AT KILANNAK A-77. JULY 1979.
David J. Thomas.
Beaufort EIS Reference Works 1982.
Inuvik, Northwest Territories : Arctic Laboratories Limited, 1979.
44 pp.

333.955 Tho

Prepared for Canadian Marine Drilling Limited (Canmar), this report presents a description of a baseline survey of Kilannak A-77 drilling site in the Beaufort Sea. The sampling objective was to obtain chemical baseline data for current levels of metals in sea water, sediment, and zoobenthos and the distribution of zoobenthos (species diversity and abundance) in the vicinity of the site. The methods and results of the sampling and comparison of those results with previous site survey data are described.

EIS / Canmar / environmental impact / Beaufort Sea / metals / benthos / sediments / water quality

A 112 A BASELINE CHEMICAL SURVEY AT TARSIUT A-25.
David J. Thomas.
Beaufort EIS Reference Works 1982.
Sidney, British Columbia : Seakem Oceanography Ltd., 1978. 35 pp.

333.916 41 Thom

This report, which was prepared for Canmar, documents a baseline study carried out at the site of Dome's Tarsiut artificial island in the Beaufort Sea. Data are presented showing levels of trace metals in seawater, sediment and zoobenthos and the distribution of zoobenthos in the vicinity of the site. The report presents a description of the sampling program, the methods and results of shore analyses and a comparison of the results with previous site survey data.

Canmar / Dome / EIS / environmental impact / Tarsiut / artificial islands / metals / sedimentation / plankton / mineral deposits / zooplankton / benthos

A 113 A BENTHIC SURVEY OF A POTENTIAL GRAVEL DEPOSIT NEAR BANKS ISLAND, N.W.T.
W.A. Heath et al.
Beaufort EIS Reference Works 1982.
Inuvik, Northwest Territories : Arctic Laboratories Limited, 1982. 105 pp.

333.955 Heat

This study was prepared for Dome Petroleum Limited as a support document for an Environmental Impact Statement (EIS). The study documents a survey of benthos, conducted on a potential gravel deposit, near the southwest coast of Banks Island, N.W.T. The purpose of the survey is to describe the types and distributions of benthos, and their community associations, in the gravel area prior to a proposed dredging program. (In the search for petroleum in the Beaufort Sea, large quantities of dredged gravel and rock are required for construction of artificial islands for year-round drilling.)

Dome / EIS / environmental impact / Banks Island, N.W.T. / benthos / dredging / Beaufort Sea / nutrition / ice / seals / crustaceans / benthic invertebrates / ecosystems, aquatic / sedimentation / ice scour / gravel mining

A 114 COLLECTION OF FISHERIES INFORMATION FROM WATER BODIES ALONG THE PROPOSED ALASKA HIGHWAY GAS PIPELINE ROUTE TO JULY 15, 1977.
Northern Natural Resource Services Ltd.
Vancouver, British Columbia : Northern Natural Resource Services Ltd., 1977. 360 pp.

639.207 207 191 Nor

The Department of Fisheries and the Environment required that this study be undertaken as a result of an application, by Foothills Pipe Lines (Yukon) Ltd. (FPL(Y)), for a grant of interests in lands in the Yukon to construct and operate a natural gas pipeline along the Alaska Highway. The study presents site-specific data, collected at or near the proposed pipeline crossing sites, with a view to assessing the potential impacts on fisheries of the proposed pipeline. It is pointed out that this is a preliminary assessment only. Data presented include species composition of fish in water bodies, cycle stages and migration. Maps and photographs are used throughout the study.

fisheries / AHGP / natural gas / pipeline routes / environmental impact / FPL(Y) / ecosystems, aquatic / fish / rivers / Yukon River / Liard River / Alsek River / drainage / pollution, industrial / migration of fish / Alaska Highway / streams / pipeline crossings

A 115 A COLLECTION OF FISHERIES INFORMATION FROM WATER BODIES ASSOCIATED WITH PIPELINE ROUTES IN THE YUKON TERRITORY FROM DAWSON TO WATSON LAKE, SEPTEMBER 1, 1977.
Northern Natural Resource Services Ltd.
Vancouver, British Columbia : Northern Natural Resource Services Ltd., 1977. 404 pp.

639.207 207 191 Nor

This technical study was undertaken at the request of the Department of Fisheries and the Environment following the Foothills Pipe Lines (Yukon) Ltd. (FPL(Y)) proposal to construct a gas pipeline running parallel to the Alaska Highway. The object of the study is to gather information on fish utilization in the summer and fall, in streams on or adjacent to the proposed pipeline route to determine the potential impact of the proposed pipeline on fishery resources. Data included cover original research as well as reviews of previously published literature.

fisheries / AHGP / natural gas / pipeline routes / environmental impact / FPL(Y) / ecosystems, aquatic / fish / rivers / drainage / pollution, industrial / migration of fish / Alaska Highway / Klondike Highway / Watson Lake, Yukon / Dawson, Yukon / Robert Campbell Highway / chinook salmon / streams / Yukon Territory

A 116 CONTRIBUTIONS TO THE SCIENCE OF ENVIRONMENTAL IMPACT ASSESSMENT: THREE PAPERS ON THE ARCTIC CISCO (*COREGONUS AUTUMNALIS*) OF NORTHERN ALASKA.
edited by D.W. Norton.
Biological Papers of the University of Alaska. Number 21.
Fairbanks, Alaska : Institute of Arctic Biology, University of Alaska, 1983. 64 pp.

333.956 1 Con

One of a series of occasional publications from the University of Alaska, this volume presents three papers on various aspects of the population, distribution and behavior of Arctic cisco in Alaskan waters. The intent of these papers is to assist in advancing the capability of predicting, with increased accuracy, the results of environmental disturbances in the environmental impact and assessment process.

Alaska / Arctic cisco / environmental impact / environmental assessment / Beaufort Sea

A 117 COPPER, ZINC, CADMIUM, LEAD, CHROMIUM, MERCURY AND IRON IN SEDIMENT, SEAWATER AND ZOOBENTHOS AT SELECTED DRILL SITES IN THE BEAUFORT SEA. SUMMER 1977.
David J. Thomas.
Beaufort EIS Reference Works 1982.
Sidney, British Columbia : Seakem Oceanography Ltd., 1978.
114 pp.

333.916 41 Tho

Prepared for Dome Petroleum Limited, this support document records details of a chemical sampling program in the southern Beaufort Sea, at ten Dome drill sites, during the period July to September 1977. The objective was to obtain baseline data for trace metals and iron in surface sediments, near-bottom water, and benthos and zoobenthos populations. This report presents a description of the sampling program, the methods and results of shore analyses and discussion of those results.

EIS / Dome / Beaufort Sea / environmental impact / benthos / metals / iron / sedimentology / oceanography / metallurgy / zooplankton

A 118 "Effects of Hydrocarbons on Microorganisms and Petroleum Biodegradation in Arctic Ecosystems."
R.M. Atlas.
In PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
edited by F.R. Engelhardt.
London, England : Elsevier Applied Science Publishers Ltd., 1985.
pp. 63-99.

363.738 2 Pet

Within harsh arctic ecosystems, microorganisms play essential roles in the energy transfers and nutrient-cycling reactions that form the foundations for the existence of higher organisms. This paper examines the impacts of Arctic oil and gas development on the critical activities of microorganisms relative to maintaining an ecological balance. It is the author's opinion that, compared to temperate ecosystems, Arctic tundra and coastal marine ecosystems are relatively stagnant and consequently rates of hydrocarbon biodegradation in Arctic ecosystems are slow. Decontamination after a major oil spill, therefore, could take decades rather than years. A comprehensive list of references is provided.

microbiology / biology, aquatic / biodegradability / Arctic / pollution, oil / ecosystems, aquatic / tundra / lakes / ponds / rivers / limnology / nutrients / northern energy development

A 119 "Effects of Oil on Arctic Invertebrates."
P.G. Wells and J.A. Percy.
In PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
edited by F.R. Engelhardt.
London, England : Elsevier Applied Science Publishers Ltd., 1985.
pp. 101-156.

363.738 2 Pet

Responses of temperate marine zooplankton to hydrocarbons have been intensively studied due to their importance as secondary producers in marine ecosystems. Planktonic production ultimately supplies energy for littoral, sublittoral, pelagic and benthic communities. This paper examines the specific effects of petroleum hydrocarbons on the ecology of Arctic zooplankton and the resulting effects on the aquatic ecosystem. Tables are used to summarize information discussed in the text and a list of references is included.

zooplankton / ecosystems, aquatic / pollution, oil / Arctic / littoral zone / benthic invertebrates / benthos / crustaceans / nutrients / biology, aquatic / ecology, marine / plankton / Arctic Ocean / sublittoral zone / pelagic zone

A 120 EFFECTS OF PHYSICAL AND CHEMICAL GRADIENTS ON THE ABUNDANCE AND DISTRIBUTION OF AQUATIC INVERTEBRATE SPECIES IN THE MACKENZIE DELTA. I. PRELIMINARY REVIEW OF UNPUBLISHED DATA.
Bohdan Bilyj.
Northern Oil and Gas Action Program Project B-3: Critical Western Arctic Fresh Water Habitats.
Winnipeg, Manitoba : Canada. Department of Fisheries and Oceans, 1985. various pag.

333.955 Bil

This Northern Oil and Gas Action Program (NOGAP) report was prepared for the Department of Fisheries and Oceans (DFO). The author presents a preliminary review of unpublished data relating to the benthic invertebrates and the physical and chemical characteristics of the sampling stations in the Mackenzie Delta. The information is tabulated to show occurrences, densities and characteristics of benthic species at each sampling station. All major physical and chemical parameters defining the habitats at the sampling sites are also tabulated and the author concludes by making recommendations for further processing and analysis of the Mackenzie Delta data. The information is presently mostly in tabular and graphic format.

NOGAP / DFO / benthic invertebrates / Mackenzie Delta, N.W.T. / rivers / lakes / Beaufort Sea / Kugmallit Bay, N.W.T. / limnology / biochemistry / ecosystems, aquatic

A 121 A FISHERIES SURVEY OF HERSCHEL ISLAND, YUKON TERRITORY FROM 9 JULY TO 12 AUGUST 1985.
R.F. Baker.
Winnipeg, Manitoba : North/South Consultants Inc., n.d. 44 pp.

333.956 11 Bak

This study is part of the Herschel Island Territorial Park Planning and Development Project and was conducted under contract to the Yukon Territorial Government (YTG). The study was undertaken to obtain information on the spatial midsummer distribution of nearshore anadromous and marine fishes of Herschel Island to assess the potential impact of park development on these species. The specifics of the study are presented in some detail. The study is illustrated and a list of references is provided.

Herschel Island, Yukon / recreation / environmental impact / fish / Arctic cisco / Arctic cod / plankton / least cisco / whitefish / smelt / Arctic flounder / YTG

A 122 FISHES, INVERTEBRATES AND MARINE PLANTS. THE BEAUFORT SEA AND THE SEARCH FOR OIL.
Roger Percy, Brian Smiley and Trudy Mullen.
edited by R.J. Childerhose.
Beaufort Sea Project Overview Report.
Ottawa, Ontario : Beaufort Sea Project. Canada. Department of Fisheries and Oceans, 1985. 167 pp.

591.524 7 Per

One of a series of Beaufort Sea Project Overview Reports, the theme of this report is a general outline of life histories and behavior of Beaufort Sea region fish, marine invertebrates and plant life and their relationship with each other and their surroundings. The arrangement of the report is geographical, beginning with the Mackenzie River, moving downstream to the estuary and into the Beaufort Sea. The authors then discuss the impact of exploration for gas and oil reserves, the use of the fish by native fishermen and the socio-economic effects of the oil industry presence in the area. The dangers and effects of possible oil spills are outlined in the concluding sections of the report. The Beaufort Sea Project is the name given to a group of studies designed to assist in ensuring that responsible regional environmental assessments are conducted prior to major offshore drilling programs being authorized.

Beaufort Sea Project / Beaufort Sea / Mackenzie River / Mackenzie River estuary, N.W.T. / ice, sea / pollution, oil / oil spills / drilling, offshore / exploration / operations / fish / native peoples / socio-economic impacts / environmental impact / fisheries / vegetation / zooplankton / native harvests / nutrients / ecosystems, aquatic / Inuit / transportation / benthic invertebrates / invertebrates / Continental Shelf, Canada

A 123 "Followup Investigations on the Acute Lethal and Sublethal Effects of Drilling Wastes."
J.M. Osborne and J. Rowley.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 134-137.

333.823 05 Arc 1983

The authors of this paper present the findings of a government/industry working group investigating the acute lethal and sublethal effects of discharging waste drilling fluid into Arctic waters. It is shown that rapid dilution of water-based drilling fluids in the receiving environment renders the fluid non-acutely lethal. Sublethal studies conducted in both the U.S.A. and Canada indicate that some sublethal effects may be associated with waste drilling fluids - however it is reported here that the results of these studies cannot be translated into effects on the ecosystem. It is the consensus of the working group that any sublethal effects attributable to drilling waste fluids would be caused by the heavy metal content and that any future studies should concentrate on this aspect.

workshops / drilling fluids / waste disposal / pollution, oil / metals / U.S.A. / ecosystems, aquatic / toxicity / environmental protection / Arctic / CPA / EPOA / APOA

A 124 GEOPHYSICAL AND BIOLOGICAL RECONNAISSANCE OF ROCK HABITATS IN WESTERN CAMDEN BAY, BEAUFORT SEA, ALASKA.
K.H. Dunton, S.V. Schonberg and Donald M. Schell.
Fairbanks, Alaska : Institute of Water Resources, University of Alaska, 1983. 30 pp.

551.48 Dun

This illustrated report presents the results of a ten-day geophysical and biological survey conducted in western Camden Bay in the Beaufort Sea. The primary objective of this benthic survey was to determine the existence of boulders and cobbles on the seafloor and the utilization of these by epilithic organisms such as seaweed and red algae. The data from the survey are presented here and discussed in terms of contradiction between these results and the results of a previous similar study. A list of references cited is included.

geophysics / biology, aquatic / Beaufort Sea, Alaskan / Camden Bay, Alaska / seaweed / algae / ecosystems, aquatic

A 125 HEAVY METAL AND ORGANIC CONTAMINENTS IN ARCTIC MARINE FISHES.
D.C.G. Muir et al.
Canada. Department of Indian Affairs and Northern Development (DIAND). Environmental Studies No. 42.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1986. 64 pp.

333.956 1 Mui

This study provides preliminary baseline data on contaminents in Arctic marine fish with which to assess problems associated with increased industrialization in the Northwest Territories. The authors present the results of tests in which fish tissues were analysed for heavy metals and organochlorines (e.g. PCBs, DDT, chlordane). This study was funded by the Northern Oil and Gas Action Program (NOGAP).

fish / pollution, industrial / metals / organic chemistry / NOGAP / DIAND / Arctic / Northwest Territories / mixed function oxidase system

A 126 IDENTIFICATION AND CHARACTERIZATION OF ARCTIC NEARSHORE BENTHIC HABITATS.
D.H. Thomson, C.M. Martin and W.E. Cross.
Canada. Department of Fisheries and Oceans. Canadian Technical Report of Fisheries and Aquatic Sciences No. 1434.
Winnipeg, Manitoba : Canada. Department of Fisheries and Oceans. Western Region, 1986. 70 pp.

592.091 632 7 Thom

This report, describing the benthos of 25 locations in the central and eastern Canadian Arctic Islands, is the result of a Department of Fisheries and Oceans (DFO) project sponsored by the Northern Oil and Gas Action Program (NOGAP). Benthic communities are identified and the roles of depth, substrate, exposure, food supply and predation in structuring these communities are identified. Sampling sites included open coastline, estuarine areas and areas within open and semi-enclosed bays and inlets. Some sampling sites were heavily used by whales, walruses and Arctic char. Ringed seals and lesser numbers of bearded seals were widely distributed throughout all the areas studied. Much of the data and study results are presented in tabular format. A list of references is provided.

Arctic Islands / DFO / NOGAP / benthos / benthic invertebrates / rivers / seas / whales / walruses / Arctic char / seals / aquatic habitats / ecosystems, aquatic

A 127 THE IMPACT OF GRAVEL DREDGING ON BENTHIC FAUNA NEAR HERSCHEL ISLAND, YUKON TERRITORY 1981.
W.A. Heath et al
Beaufort EIS Reference Works 1982.
Inuvik, Northwest Territories : Arctic Laboratories Limited, 1982. 147 pp.

333.955 Hea

The use of dredged gravel and rock in the construction of artificial islands for offshore petroleum exploration is described as a new form of resource utilization in the Beaufort Sea. This report, prepared for Dome Petroleum Limited, examines the impact of dredging on the benthos and subsequent recolonization potential of gravel bars in Mackenzie Bay near Herschel Island, Yukon Territory. Results from sampling conducted during July and September 1981 (before and after dredging took place) are considered by the authors. Photographs and charts are included but much of the information is presented in tabular format. A list of references is provided.

artificial islands / exploration / drilling, offshore / Beaufort Sea / benthos / ecology, marine / aquatic habitats / plankton / dredging / ice, sea / sedimentation / Mackenzie Bay, N.W.T. / EIS / environmental impact / Dome / Herschel Island, Yukon

A 128 "An Investigation of the Dispersions of Drilling Mud and Cuttings From a Point Source Discharge and Its Environmental Implications."
L.G. Hammer.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 125-134.

333.823 05 Arc 1983

This document addresses concerns regarding the direct discharge of drilling mud and cuttings into Arctic waters. (The practice of disposing of drilling waste through discharge and dispersion in the sea is a world-wide one because it is practical and economical.) The author examines concerns in two main areas - short term effects in the immediate zone of discharge and longer term effects caused by the accumulation of potential contaminants in the environment. The studies reported here provide data on the dispersion of the drilling waste after discharge, seafloor accumulation of the drilling waste and its toxicity. A short list of references is included with this paper.

workshops / drilling fluids / pollution, oil / toxicity / ecosystems, aquatic / drilling, offshore / sedimentation / metals / environmental impact / waste disposal / Arctic / CPA / EPOA / APOA

A 129 LATE WINTER SURVEYS OF AQUATIC RESOURCES ALONG THE IPL PIPELINE ROUTE; NORMAN WELLS NWT TO ZAMA TERMINAL, ALTA.
D. McCart and P. McCart.
Calgary, Alberta : Aquatic Environments Limited, 1982. 28 pp.

333.956 1 McC

It is the authors' view that winter construction of the IPL (Interprovincial Pipelines Ltd.) pipeline, from Norman Wells, N.W.T., to Zama City, Alberta, will result in some disturbance to streambeds crossed by the pipeline route. This study assesses the potential for fish overwintering in the vicinity of stream crossings and suggests mitigative measures to reduce the impact of winter construction where overwintering fish are likely to occur.

Interprovincial Pipelines / Norman Wells, N.W.T. / Alberta / pipeline routes / streams / pipeline crossings / fish / aquatic habitats

A 130 "Modeling Movements and Distribution of Arctic Cisco (*Coregonus autumnalis*) relative to temperature-salinity regimes of the Beaufort Sea near the Waterflood Causeway, Prudhoe Bay, Alaska."
William H. Neill et al.
In CONTRIBUTIONS TO THE SCIENCE OF ENVIRONMENTAL IMPACT ASSESSMENT: THREE PAPERS ON THE ARCTIC CISCO (*COREGONUS AUTUMNALIS*) OF NORTHERN ALASKA.
edited by D.W. Norton.
Biological Papers of the University of Alaska. Number 21.
Fairbanks, Alaska : Institute of Arctic Biology, University of Alaska, 1983. pp. 39-61.

333.956 1 Con

This paper describes the theory and structure of a model developed to evaluate the movement patterns of small Arctic cisco relative to the environmental incongruity of the Waterflood Causeway, a gravel pier that projects 3.9m into the Beaufort Sea near Prudhoe Bay. Tests conducted using the model are described and some results are discussed. Graphs and tables are included in this fairly technical paper and there is a list of references cited.

Arctic cisco / Prudhoe Bay, Alaska / Beaufort Sea / environmental impact / water temperature / salinity

A 131 "Phytoplankton Abundance, Chlorophyll a, and a Primary Productivity in the Western Beaufort Sea."
Rita Horner.
In THE ALASKAN BEAUFORT SEA, ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 295-310.

551.468 7 ALA

With the discovery of oil on the North Slope, Alaska, several studies were designed to provide baseline information on the ecology of the marine and freshwater ecosystems, with work being done primarily in shallow, nearshore environments. Referring to some of these earlier studies and to more recent work, this author discusses phytoplankton associations, chlorophyll a, and relative phytoplankton production in the area between the 20 metre depth contour and the edge of the ice in the Beaufort Sea, between Point Barrow and Demarcation Point. The paper contains a list of all phytoplankton species found in the Beaufort Sea and a list of references is provided.

phytoplankton / biochemistry / ecosystems, aquatic / ecology, marine / Beaufort Sea, Alaskan / Point Barrow, Alaska / Demarcation Point, Alaska / Alaska / biology, aquatic

A 132 PRELIMINARY RESULTS OF A FISHERIES STUDY OF TWO FRESHWATER LAKE SYSTEMS ON THE TUKTOYAKTUK PENINSULA, NORTHWEST TERRITORIES.
W.A. Bond and R.N. Erickson.
Canada. Department of Fisheries and Oceans. Canadian Data Report of Fisheries and Aquatic Sciences No. 348.
Winnipeg, Manitoba : Canada. Department of Fisheries and Oceans. Western Region, 1982. 61 pp.

597.092 971 9 Bon

This report presents the preliminary results gathered during the first year (1981) of a two year study to determine the significance as fish habitat of the lake systems associated with Freshwater and Mayogiak Creeks, two streams draining off the Tuktoyaktuk Peninsula into Tuktoyaktuk Harbour. Specifically, the migration of several anadromous species such as broad whitefish, lake whitefish and least cisco were documented in both streams and the data collected include number of migrant fish, timing of migration, and food habits. The increase in the level of industrial activity, connected with the search for oil and gas near Tuktoyaktuk, has the potential to impede the progress of fish migrations and prohibit access to areas critical to the life histories of these fish. The intent of this study is to address any negative impacts.

migration of fish / whitefish / least cisco / fish / Tuktoyaktuk Peninsula, N.W.T. / environmental impact / salinity / creeks / streams / aquatic habitats / lakes / benthic invertebrates / limnology / bathymetry / plankton

A 133 REPORT ON A LABORATORY EVALUATION OF A MIXED FUNCTION OXIDASE SYSTEM AS AN ENVIRONMENTAL MONITOR.
Shawmont Martec Ltd.
Offshore Labrador Biological Studies.
s.l. : Shawmont Martec Ltd., 1982. 1 microfiche.

MF OLABS 29

The results of preliminary studies carried out to investigate the use of the mixed function oxidase system as an environmental monitor are reported here. Capelin (smelt) eggs were exposed to fresh Hibernia crude oil and this report examines enzyme activities which occurred. After the presentation of very technical data, the conclusion is drawn that larvae and adult fish have inducible mixed function oxidase enzyme systems. These systems can be useful as tangible biological indicators for monitoring point sources of petroleum contamination in the marine environment. Tables showing enzyme activities at four day intervals, and mixed function oxidase induction in petroleum exposed larvae, are included as is a list of references.

environmental monitoring / smelt / fish / pollution, oil / Hibernia / ecology, marine / biology, aquatic / mixed function oxidase system

A 134 RESPONSE OF MARINE ANIMALS TO PETROLEUM AND SPECIFIC PETROLEUM HYDROCARBONS.
Jerry M. Neff and Jack W. Anderson.
Toronto, Ontario : John Wiley & Sons, 1981. 177 pp.

574.5 Nef

This volume is the result of extensive field and laboratory research dealing with the toxicity and sublethal biological effects of petroleum, and specific petroleum hydrocarbons, to marine organisms. The authors summarize the major results of this research and discuss them in relation to major published information. The authors suggest that, after intensive investigations, there has been increased realization that deletorious impacts of oil on the marine ecosystem may persist long after the visible oil pollution has been cleaned up or washed away. A list of references, a glossary and an index are provided.

pollution, oil / environmental impact / ecosystems, aquatic / toxicity / fish / benthos / benthic invertebrates / algae / biology, aquatic

A 135 RESULTS OF A BROAD WHITEFISH COLLECTION IN FRESHWATER SYSTEMS ALONG THE TUKTOYAKTUK PENINSULA AND IN THE INNER MACKENZIE DELTA REGION.
N.E. Strange and D.S. MacDonnell.
Northern Oil and Gas Action Program. Project B-3: Critical Western Arctic Freshwater Habitats.
Winnipeg, Manitoba : North/South Consultants Inc., 1985. 25 pp.

639.3 Str

Prepared for the Department of Fisheries and Oceans (DFO), this Northern Oil and Gas Action Program (NOGAP) report documents the collection of broad whitefish from freshwater systems on the Tuktoyaktuk Peninsula, and in the inner Mackenzie Delta region, for delivery, fresh frozen, to the Freshwater Institute in Winnipeg for subsequent analyses. This report lists each site from which fish were collected, and records the species and the number of fish caught. Maps are included which show the collection areas and tables summarize the collection data.

DFO / NOGAP / fish / whitefish / Tuktoyaktuk Peninsula, N.W.T. / Mackenzie Delta, N.W.T. / lakes / streams / least cisco / Arctic cisco / grayling / longnose sucker

A 136 A REVIEW OF THE LIMNOLOGY OF THE MACKENZIE DELTA AND TUKTOYAKTUK PENINSULA.
Douglas Ramsey and Patricia Ramlal.
Winnipeg, Manitoba : Agassiz North Associates, 1985. n.p.

551.48 Ram

This report, which was prepared for the Department of Fisheries and Oceans (DFO) reviews the available information on the limnology of the Mackenzie Delta and provides a general description of the factors limiting primary and secondary productivity and those factors which limit utilization of that production by fish. As well, previous studies conducted on the lakes of the Tuktoyaktuk Peninsula are considered in this review.

limnology / DFO / Mackenzie Delta, N.W.T. / Tuktoyaktuk Peninsula, N.W.T. / fish / nutrients / lakes / ponds / sedimentation / microbiology / bacteria / phytoplankton / plankton / benthos / biochemistry / benthic macroinvertebrates / zooplankton / ecosystems, aquatic

A 137 SUBMISSIONS TO THE ALASKA HIGHWAY GAS PIPELINE HEARINGS.
Canada. Department of Fisheries and Oceans (Pacific and Yukon region).
Whitehorse, Yukon : Canada. Department of Fisheries and Oceans, 1979. various pag.

330.971 DFO

This document contains the briefs presented by the Department of Fisheries and Oceans (DFO) to the Environmental Assessment and Review Panel (EARP) during a public hearing, held in Whitehorse in April 1979, on the subject of the Alaska Highway Gas Pipeline (AHGP) proposal by Foothills Pipe Lines (Yukon) Ltd. (FPL(Y)). The DFO's concerns regarding fish habitat and fisheries damage, and the proposed pipeline crossings in the Yukon Territory are detailed and a summary of fish species and life stages in streams crossed by the proposed pipeline is provided. An evaluation of the fisheries-related information included in the Environmental Impact Statement (EIS) for the AHGP is also presented.

DFO / EARP / Whitehorse, Yukon / AHGP / FPL(Y) / fish / aquatic habitats / fisheries / pipeline crossings / streams / EIS / environmental impact / Yukon Territory

A 138 SURVEY OF FISH POPULATIONS IN KUGMALLIT BAY AND TUKTOYAKTUK HARBOUR, NORTHWEST TERRITORIES.
Sheila C. Byers and Randolph K. Kashino.
Beaufort EIS Reference Works 1982.
s.l. : Dobrocky Seatech Ltd., 1980. 77 pp.

639.3 Bye

Commissioned by Dome Petroleum, this research report details the results of a survey of resident fish populations in Kugmallit Bay and Tuktoyaktuk Harbour. The survey was conducted to satisfy the requirements of ocean dumping permit #4443-0990, and the monitoring studies were designed to determine the presence of migrating fish and what effects dredging has on fish migratory habits. In fact, since no dredging occurred during the study period, this report is, in essence, a pre-dredging survey. However, the report does include data on other studies carried out at a dredge site south of the Canmar loading dock and at three proposed sites. A short bibliography is included as well as numerous tables and some photographs.

EIS / Dome / fish / Kugmallit Bay, N.W.T. / Tuktoyaktuk, N.W.T. / Beaufort Sea / environmental monitoring / oceanography / environmental impact / Canmar / dredging / migration of fish

A 139 A SURVEY OF THE COASTAL FISHES OF THE SOUTHEASTERN BEAUFORT SEA.
M.J. Lawrence, G. Lacho and S. Davies.
Canada. Department of Fisheries and Oceans. Canadian Technical Report of Fisheries and Aquatic Sciences No. 1220.
Winnipeg, Manitoba : Canada. Western Region, Department of Fisheries and Oceans, 1984. 178 pp.

597.092 87 Law

This report describes the results of the 1978-80 fisheries surveys of the coastal, freshwater and estuarine environments in the vicinity of the Mackenzie Delta, during open-water season. The survey results present information on the life history, biology and ecology of fish of the area, to better enable protection and management of regional fish resources in view of present and forecast economic expansion and development. The majority of this report is in tabular format and there is considerable use made of graphs. A list of references is provided.

Mackenzie Delta, N.W.T. / Beaufort Sea / fish / ecology, marine / biology, aquatic / northern energy development / environmental impact / hydrology / lakes / streams / ecosystems, aquatic / spawning / aquatic habitats

A 140 "Temperature Preference of Juvenile Arctic Cisco (*Coregonus autumnalis*) from the Alaskan Beaufort Sea."
Robert G. Fechhelm, William H. Neill and Benny J. Galloway.
In CONTRIBUTIONS TO THE SCIENCE OF ENVIRONMENTAL IMPACT ASSESSMENT: THREE PAPERS ON THE ARCTIC CISCO (*COREGONUS AUTUMNALIS*) OF NORTHERN ALASKA.
edited by D.W. Norton.
Biological Papers of the University of Alaska. Number 21.
Fairbanks, Alaska : Institute of Arctic Biology, University of Alaska, 1983. pp. 24-38.

333.956 1 Con

This article reports on a laboratory study conducted to determine the temperature preference of juvenile Arctic cisco as a function of both acclimation temperature and salinity. Apparatus used to measure temperature preferences is described and the results, which are consistent with observed summer distribution of Arctic cisco in the Alaskan Beaufort Sea, show that the fish concentrate near shore in a narrow band of relatively warm, moderately saline water. A list of literature cited is included.

Arctic cisco / Beaufort Sea, Alaskan / water temperature / salinity

A 141 TINGMIARK K-91 AND KOPANOAR D-14: A CHEMICAL STUDY ONE YEAR AFTER THE OCCURRENCE OF WATER FLOW JULY 1978.
David J. Thomas.
Beaufort EIS Reference Works 1982.
Sidney, British Columbia : Seakem Oceanography Ltd., 1978.
126 pp.

333.955 Tho

This volume, prepared for Canmar, discusses a mainly chemical sampling program which was conducted in July 1978, at Tingmiark K-91 and Kopanoar D-14, as part of a continuing assessment of the glory hole areas since the occurrence of water flow in 1979. The main objectives of this program are to determine whether or not heat and water seepage have changed since 1977 and to assess the effects that the waterflows had or continue to have on the environmental quality in the vicinity of the sites. A summary and interpretation of the findings are presented and, where possible, a comparison with 1977 data is included.

EIS / environmental impact / Canmar / Dome / Tingmiark / Kopanoar / environmental assessment / ecosystems, aquatic / mineral deposits / benthos / metals / zooplankton / sediments

A 142 "Trophic Dynamics in an Arctic Lagoon."
Peter C. Craig et al.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 347-380.

551.468 7 Ala

Summer in the Arctic is a brief but biologically active period during which large numbers of birds and fish come to feed on an abundant supply of aquatic invertebrates in nearshore waters. This study examines major trophic patterns in Simpson Lagoon, Alaska. Study of diving ducks and fish is followed by an examination of their invertebrate prey species. There are numerous tables and charts in this paper and a list of references is included.

Beaufort Sea / Simpson Lagoon, Alaska / seabirds / fish / diving species / surface feeding species / ducks / benthic invertebrates / phytoplankton / nutrition / Arctic char / smelt / gulls / zooplankton / crustaceans / Arctic cisco / ecosystems, aquatic

A 143 "Trophic Relationships of Vertebrate Consumers in the Alaskan Beaufort Sea."
Kathryn J. Frost and Lloyd F. Lowry.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 381-401.

551.468 7 Ala

In this paper, the authors compile and review information on biomass and food habits, and produce estimates of the quantities of prey consumed by major vertebrate species on the Continental Shelf of the Alaskan Beaufort Sea. The estimates are of use in evaluating the ecological role of various consumers. The study includes whales, seals, seabirds, and fish. A list of references is included.

Beaufort Sea, Alaskan / Continental Shelf, Alaska / fish / whales / seals / seabirds / ecology, marine / zooplankton / plankton / benthos / crustaceans / benthic fauna / ecosystems, aquatic / nutrition

A 144 ZOOPLANKTON OF A BOWHEAD WHALE FEEDING AREA OFF THE YUKON COAST IN AUGUST 1985.
Michael S.W. Bradstreet and David B. Fissel.
s.l. : s.n., 1986. 163 pp.

592.091 63 Bra

Prepared for the Department of Indian Affairs and Northern Development (DIAND), this study investigates data on oceanographic conditions and zooplankton found during field investigations at a study area offshore from the Yukon coast between Shingle Point and Herschel Island. The broad objective of the field investigations is to better understand the significance of the area in terms of the bowhead whales' annual energy budget. The design and results of the investigations are described and discussed. A list of literature cited is included.

DIAND / oceanography / zooplankton / ecosystems, aquatic / whales / Shingle Point, Yukon / Herschel Island, Yukon / nutrients / Beaufort Sea / Yukon Territory

HYDROLOGY AND CLIMATE

A 145 AN ANALYSIS OF CURRENT METER DATA OBTAINED AT CANMAR DRILLSHIPS 1976-1979.
D.B. Fissel.
Beaufort EIS Support Document 1982.
Sidney, British Columbia : Arctic Sciences Limited, 1981. 126 pp.

551.470 22 Fis

Dome Petroleum Limited, through its subsidiary Canmar, has been engaged in offshore drilling for oil in the Beaufort Sea since 1976. During the course of the drilling operations, measurement of near surface and subsurface currents have been routinely collected from the drilling ships, along with measurements of environmental factors including meteorological and wave data. These data are analysed in this report with a view to providing an improved understanding of environmental factors as they relate to the effect on the environment of offshore operations.

Dome / EIS / environmental impact / drilling, offshore / Beaufort Sea / Canmar / tidal currents / meteorology / waves / drillships / wind

A 146 ANALYSIS OF INTERACTION PROBABILITIES BETWEEN LARGE ICE FEATURES AND OFFSHORE STRUCTURES IN THE CANADIAN BEAUFORT SEA.
S. De Paoli, T.B. Morrison, and R.W. Marcellus.
Beaufort EIS Reference Works 1982.
s.l. : s.n., 1982. 101 pp.

622.182 82 DeP

Many different shapes and sizes of ice features will interact with an offshore production structure during the approximately 25-30 years of expected life of the structure. The authors, who represent Dome Petroleum Limited and Canadian Marine Engineering Limited (Canmar), examine and discuss a study which was undertaken to estimate the frequency of large ice feature/offshore production structure interactions in the southern Beaufort Sea, for inclusion in ice design criteria for offshore structures. Ice islands and multi-year hummock fields are considered here, including the formation, number and probability of interaction with offshore structures.

ice / ice, sea / ice islands / hummocks / Canmar / Dome / Beaufort Sea / oil rigs / drilling, offshore / technology / wind / steel structures / engineering / EIS

A 147 ASSESSMENT OF MARINE RADARS FOR THE DETECTION OF ICE AND ICEBERGS.
Joseph P. Ryan, Michael Harvey and Andrew Kent.
Environmental Studies Revolving Funds Report No. 008.
Ottawa, Ontario : Environmental Studies Revolving Funds, 1985.
127 pp.

623.856 48 Rya

The major objective of this study is to provide a quantitative assessment of the iceberg detection capability of present marine radars, with particular emphasis on bergy bits and growlers. The field investigation conducted to determine environmental effects on propagation and detection, and the relationship between the iceberg above-water size and its radar cross-section is described. Data analysis and recommendations conclude this Environmental Studies Revolving Funds (ESRF) report.

ESRF / icebergs / radar systems / technology / wind / waves / water temperature

A 148 ATLAS OF THE BEAUFORT SEA.
Ivan M. Lissauer, L.E. Hachmeister and B.J. Morson.
United States Coast Guard Report No. CG-D-33-84.
Springfield, Virginia : National Technical Information Service, 1984.
various pag.

912.196 327 Lis

Prepared for the United States Coast Guard, Office of Research and Development, this is a reference document on oceanography, meteorology, ice and climatology in the Beaufort Sea area. From a review of information on these topics, maps have been generated showing circulation in typical wind conditions. These maps show tides, storm surges, bathymetry and charts of mean ice drifts over time. The meteorology section contains information on winds, storm surges and waves, and a rapid manual forecast system for estimating the height of a storm surge is included. Charts and maps are used to illustrate the text and a list of references is provided.

maps / Beaufort Sea / oceanography / meteorology / climatology / ice / bathymetry / waves / wind / storms / ice, sea

A 149 BEAUFORT SEA ENVIRONMENTAL OBSERVATION/PREDICTION SYSTEM: TECHNICAL AND FINANCIAL REPORT. 1977, 1978.
Canada. Atmospheric Environment Service. Arctic Weather Centre.
Edmonton, Alberta : Canada. Atmospheric Environment Service, 1977, 1978. various pag.

551.691 632 7 BOPS

The annual report of the Beaufort Observation/Prediction system is presented here. This system is operated to support offshore drilling and platform island construction by providing warnings of hazardous weather, wave or ice conditions which might threaten operations or represent a risk to the environment, and to provide observation, consultation and training services to the users of the system. The report presents details of the structure of the Beaufort Observation/Prediction System and outlines the operational and organizational aspects of the program.

meteorology / Beaufort Sea / waves / ice, sea / environmental monitoring / operations / drilling, offshore

A 150 BEAUFORT SEA EXTREME WAVE STUDIES ASSESSMENT.
Alan Murray and Marc Maes.
Environmental Studies Revolving Funds Report No. 023.
Ottawa, Ontario : Det norske Veritas (Canada) Limited, 1986. 97 pp.

551.470 22 Mur

In this report, funded by the Environmental Studies Revolving Funds (ESRF), two studies, undertaken to quantify the worst sea states in the Beaufort Sea for the purpose of establishing suitable design criteria, are reviewed. There is considerable disparity between the two studies in their estimates of extreme wave heights for deep water conditions although for shallow water the agreement is more favourable. The purpose of this assessment is to explain and, where possible, reconcile differences through a comparison of the methods and assessment of the data used. Tables, charts and graphs are included and there is a list of references.

Beaufort Sea / waves / wind / oceanography / storms / hydrology / ice, sea / ESRF / artificial islands / oil rigs

A 151 BEAUFORT SEA ICE MOVEMENT FROM RAMS BUOY DATA ANALYSIS 1977-1978. VOLUME 1.
D. McGonigal.
Beaufort EIS Reference Works 1982.
Calgary, Alberta : Gulf Canada Resources Inc., 1979. n.p.

551.343 McG

This report presents the results of the analysis of RAMS buoy positional data for ice movement in the Beaufort Sea, collected between November 1977 and June 1978, by Gulf, Canmar and the federal government. The ice movement information is presented entirely in tabular and graphic format.

ice, sea / Beaufort Sea / Gulf / Canmar / government / EIS

A 152 BEAUFORT SEA ICE STEREO PHOTO ANALYSIS 1976-77.
B.D. Wright and D.L. Schwab.
Beaufort EIS Reference Works 1982.
s.l. : s.n., 1979. n.p.

551.343 Wri

This report presents the results of an analysis of Beaufort Sea three dimensional aerial photographs. The photographs were taken by Esso Resources Canada during the winter of 1976-77. The details of ice location, type, ridge height and ice floe size are presented in tabular and graphic format and maps are included to illustrate the study area and to summarize the content of the analyses.

ice, sea / ice / Beaufort Sea / EIS / Esso / ice floes / ice ridges

A 153 BEAUFORT WEATHER OFFICE REPORT, 1980, 1982, 1983, 1984, 1985.
Canada. Atmospheric Environment Service. Beaufort Weather Office.
Edmonton, Alberta : Canada. Atmospheric Environment Service, 1980, 1982, 1983, 1984, 1985. various pag.

551.691 632 7 AES

This annual weather report for the Beaufort Sea region describes the observed wind, wave and weather conditions over the previous season (June to November), for the benefit of operators in the region. Maps, photographs and tables are used throughout to present the information and an abbreviated ice summary is incorporated into the monthly summaries of environmental conditions.

meteorology / Beaufort Sea / waves / wind / ice, sea

A 154 CANADIAN BEAUFORT SEA 1984 REPETITIVE MAPPING OF ICE SCOUR.
J. Shearer, B. Laroche and G. Fortin.
Environmental Studies Revolving Funds Report No. 032.
Ottawa, Ontario : Environmental Studies Revolving Funds, 1986.
43 pp.

551.342 She

Ice scour tracks are sea-bed features caused by the contact with the seabed of moving ice masses. Funded by the Environmental Studies Revolving Funds (ESRF), this study documents a survey carried out in the Beaufort Sea, with wide-scan sonar equipment, to study the frequency of new scouring events and to examine the changes in physical characteristics of a number of selected scours. Numerous maps and graphs are included and there is a list of references.

ESRF / ice, sea / ice scour / sonar scanning / Beaufort Sea

A 155 CANMAR - SUMMER'S HARBOUR COALDUSTING OPERATIONS 1979: ENVIRONMENTAL MONTORING.
David J. Thomas.
Beaufort EIS Reference Works 1982.
Inuvik, Northwest Territories : Arctic Laboratories Limited, 1979.
33 pp.

333.916 41 Thom

In May 1979, coal dust was broadcast along a route over the ice leading from Summer's Harbour, Booth Island, N.W.T., seaward past Cape Parry, to encourage premature weakening of sea ice. This environmental impact reference work, prepared under contract to Canadian Marine Drilling Limited (Canmar), describes the methods and results of a sampling to determine any environmental impact on the water column or sediments following the use of the coal dust. Much of the information is presented in tabular format and a list of references is provided.

Booth Island, N.W.T. / Summer's Harbour, N.W.T. / Cape Parry, N.W.T. / coal dust / environmental impact / EIS / pollution, industrial / ice, sea / Beaufort Sea / Canmar / metals / water column

A 156 THE CLIMATE OF ARCTIC CANADA IN A 2XCO$_2$ WORLD [UNPUBLISHED MANUSCRIPT].
R.C. Harvey.
Canada. Atmospheric Environment Service. Canadian Climate Centre Report No. 82-5.
Downsview, Ontario : Canada. Atmospheric Environment Service, 1982. 21 pp.

574.54 Har

The author of this unpublished manuscript examines the possible effects of an increase in atmospheric carbon dioxide concentration upon the climate of the Arctic, particularly Arctic Canada (Canada north of 60°N). The problem of deducing the possible changes in climate, under an increase in the carbon dioxide concentration, is approached by applying an analog method in which historic and prehistoric warm and cold periods are used to make projections of possible climate regimes that could be expected under a global warming. A lengthy list of related references is included.

climatology / Arctic / pollution / ice / precipitation / pipeline construction / drilling, offshore / fishing / transportation, marine / vegetation / carbon dioxide

A 157 THE CLIMATE OF THE CANADIAN ARCTIC ISLANDS AND ADJACENT WATERS.
J.B. Maxwell.
Canada. Atmospheric Environment Service Climatological Studies No. 30.
Ottawa, Ontario : Canada. Atmospheric Environment Service, 1980.
2 vol.

551.697 Max

This study presents a broad overview of the climatic factors pertinent to the Canadian Arctic Islands and their adjacent waters. The emphasis is on probability estimates of extremes of temperature, wind and precipitation, as well as the duration of critical weather types. Topics covered include wind chill, blizzards, sea state, sea ice and temperature inversion frequencies. Both volumes are illustrated and include maps. Each of the eight sections contains a list of references.

climatology / Arctic Islands / ice, sea / wind / seas / snow / meteorology / arctic conditions / precipitation / atmospheric structure

A 158 CLIMATIC ATLAS OF THE OUTER CONTINENTAL SHELF WATERS AND COASTAL REGIONS OF ALASKA.
William Brower et al.
Anchorage, Alaska : Arctic Environmental Information and Data Center, University of Alaska, 1977. 3 vol.

912.798 Bro

This publication is the result of a joint project of the Arctic Environmental Information and Data Center (AEIDC) and the National Climatic Centre/National Oceanic Atmosphere Administration. The project establishes current knowledge of climatological conditions in three Alaskan marine and near coastal areas that are important to resource development of the Outer Continental Shelf (OCS) - the Gulf of Alaska (volume I), the Bering Sea (volume II) and the Chukchi and Beaufort Seas (volume III). Data presented includes, mean and extreme temperatures, wind, visibility, sea level pressure, water temperature, clouds, waves, storm surges, sea ice, currents, bathymetry, and detailed weather.

AEIDC / atlases / climatology / OCS / Gulf of Alaska / Bering Sea / Chukchi Sea / Beaufort Sea / wind / waves / storms / ice, sea / currents / bathymetry / meteorology / hydrology / Alaska / icing / topography / earthquakes / water temperature

A 159 COMPILATION OF CLIMATOLOGICAL DATA FOR BEAUFORT SEA, CHUKCHI SEA, PARRY CHANNEL, BAFFIN BAY, DAVIS STRAIT AND BERING SEA REGIONS.
Meteorological and Environmental Planning Limited.
Downsview, Ontario : Meteorological and Environmental Planning Limited, 1981. 297 pp.

551.691 632 Met

Dome Petroleum Limited requested the compilation of this source document, which assimilates all materials used to prepare Dome's summary document for the climatological sections of their Environmental Impact Statement (EIS). All analysed data used in the EIS summary are included in this document, along with appropriate references. Much of the content is in the form of tables, graphs, diagrams and maps.

Dome / EIS / environmental impact / climatology / wind / waves / precipitation / icing / Beaufort Sea / Chukchi Sea / Parry Channel, N.W.T. / Baffin Bay, N.W.T. / Davis Strait, N.W.T. / Bering Sea

A 160 DATA RECORD OF CURRENT OBSERVATIONS: BEAUFORT SEA 1974-1976 [UNPUBLISHED MANUSCRIPT].
W.S. Huggett, M.J. Woodward and A.N. Douglas.
Canadian Hydrographic Service. Data Record of Current Observations Volume XVI.
Sidney, British Columbia : Institute of Ocean Sciences, 1977.
139 pp.

551.478 7 Hug

The information presented in this report was collected as part of the Beaufort Sea Project, a study of environmental factors in the Beaufort in relation to proposed offshore drilling for oil and gas. Current meter data from the southern Beaufort Sea for the years 1973, 1974 and 1975 are summarized and co-tidal charts are presented for the tidal streams and tides. Temperature and salinity measurements coincident with the current observations are also shown.

hydrology / Beaufort Sea / Beaufort Sea Project / environmental assessment / tidal currents / streams / salinity / oceanography

A 161 DISTRIBUTION OF BOWHEAD WHALES IN RELATION TO HYDROMETEOROLOGICAL EVENTS IN THE BEAUFORT SEA.
Denis H. Thomson et al.
Environmental Studies Revolving Funds Report No. 028.
Ottawa, Ontario : LGL Limited, 1986. 119 pp.

599.51 Tho

A project of the Environmental Studies Revolving Funds (ESRF), this report reviews the general features of the southeastern Beaufort Sea, including physical oceanography and meteorology, zooplankton communities and the distribution and feeding habits of bowhead whales. Sea ice data, physical oceanographic and meteorological measurements and bowhead whale distribution in 1983 are analysed. These data are then correlated in an attempt to explain the observed distributions of bowhead whales in terms of the hydrometeorological phenomena of the Beaufort Sea.

ESRF / Beaufort Sea / meteorology / oceanography / zooplankton / whales / ice, sea / bathymetry / benthic invertebrates / ecosystems, aquatic / salinity / wind / water temperature / Continental Shelf, Canada

A 162 DOCUMENTATION OF ICEBERG GROUNDINGS.
Mona El-Tahan, et al.
Environmental Studies Revolving Funds Report No. 007.
Ottawa, Ontario : Fenco Newfoundland Limited, 1985. 162 pp.

551.343 Elt

Financed by the Environmental Studies Revolving Funds (ESRF) and administered by the Canadian Oil and Gas Lands Administration (COGLA), this study provides a comprehensive documentation of iceberg groundings off Canada's east coast. The objective of the study is to provide sufficient information to establish a data base containing the positions of iceberg groundings, and associated information, for use in planning and designing offshore drilling activities and production systems.

icebergs / ESRF / COGLA / Atlantic Ocean / Baffin Bay, N.W.T. / drilling, offshore

A 163 EVALUATION OF EXISTING CLIMATOLOGIES FOR THE BEAUFORT SEA. FINAL REPORT. [UNPUBLISHED MANUSCRIPT].
Canada. Atmospheric Environment Service.
Canada. Atmospheric Environment Service. Canadian Climate Centre Report No. 86-13.
Downsview, Ontario : Canada. Atmospheric Environment Service, 1986. various pag.

551.691 632 7 MEP

Over the 15 year period (1971-1985) a variety of climate studies were done for the Beaufort Sea area by both industry and government. This report provides a review of many of these studies to document the current extent of knowledge, identify and assess any limitations of previous studies, and identify priorities for future research. The report is addressed in particular to the needs of the oil and gas industry. Climatology study summary tables are appended and a list of references is provided.

climatology / Beaufort Sea / northern energy development / waves / storms / wind / ice / ice, sea

A 164 "Evidence of 60 Meter Deep Arctic Pressure Ridge Keels."
Erk Reimnitz, P.W. Barnes, R.L. Phillips.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985. pp. 41-47.

622.182 82 Har 1985

Numerous efforts have been made since the nineteen-sixties to determine the ice thickness distribution in the Arctic Ocean and, in particular, to learn the keel depth of the large or modern pressure ridges. With the discovery of oil and gas in the Arctic offshore, knowledge of the maximum ice thickness in the Continental Shelf is becoming increasingly important. In this article, the authors discuss methods of interpreting the age of deepwater gouges and measuring the depth of the gouges.

Arctic Ocean / ice / ice, sea / ice scour / ice ridges / Continental Shelf, Alaska / Beaufort Sea / geology / hydrology / currents / oceanography

A 165 "Fast Ice Sheet Deformation During Ice-Push and Shore Ice Ride-Up."
Lewis H. Shapiro et al.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 137-157.

551.468 7 Ala

This paper presents results of field studies of shore ice pile-ups and associated deformation of the fast ice, which occurred during several ice-push events in the Point Barrow area, between 1975 and 1978. Ice-push is lateral pressure caused by expansion of shoreward-moving ice, following a rise in temperature. The authors formulate a preliminary model of the characteristics of the deformation of a landfast ice sheet during the formation of ice-push ridges and ride-ups.

ice, sea / Point Barrow, Alaska / ice / ice-jamming / Beaufort Sea, Alaskan / Alaska

A 166 FINAL REPORT ON THE FIELD STUDIES AND AERIAL MAPPING ALONG THE NORTHWEST EDGE OF THE CANADIAN ARCHIPELAGO.
R.D. Hudson et al.
Beaufort EIS Reference Works 1982.
s.l. : s.n., 1980. various pag.

551.34 Hud

A three week field study, to investigate ice dynamics and ice features along the northwest edge of the Canadian Arctic Archipelago, is described in this support document. Fourteen ground sites were visited during the study and more than 2000 line km of aerial photography taken. Floe size and ice types from more than 24,000 floes have been analysed and presented here, providing a statistical base for the Arctic's most dynamic ice zone. Tables, charts, diagrams and photographs are provided as well as a short bibliography.

ice / Arctic Islands / ice, sea / Arctic Ocean / Beaufort Sea / ice islands / icebergs / ice ridges / EIS

A 167 THE FLEXURAL FAILURE OF HUMMOCK FIELDS AND LARGE FLOES AT THE SUMMER ICE EDGE IN THE BEAUFORT SEA.
Peter Wadhams.
Beaufort EIS Reference Works 1982.
s.l. : s.n., 1981. various pag.

551.343 Wad

In this technical report for Dome Petroleum Limited, wave data statistics, produced by Gulf Canada Resources, are used to generate extreme value statistics which are then used to compute the effect of Beaufort Sea waves on ice features. The likelihood of flexural failure is estimated and the maximum sizes of the fragments computed. The ice features considered are ice islands, hummocks (pressure ice characterized by haphazardly arranged mounds) and ice floes. These features present a possible threat to drilling rigs in the Beaufort Sea in summer, when strong northerly winds may cause southward excursions of the pack towards drilling structures. Many graphs and tables are used and a list of references is included.

Dome / EIS / environmental impact / Gulf / Beaufort Sea / waves / wind / hummocks / ice islands / ice floes / ice, sea / drilling, offshore

A 168 A HINDCAST STUDY OF EXTREME WATER LEVELS IN THE BEAUFORT SEA.
Donald O. Hodgins and Ole Brink-Kjaer.
Beaufort EIS Reference Works 1982.
Vancouver, British Columbia : Seaconsult Marine Research Ltd., 1981. 231 pp.

551.468 7 Hod

In this report, prepared for Esso Resources Canada Limited, extreme significant wave heights in the Beaufort Sea, and extreme water levels produced by the addition of wind-generated waves, storm surge, and tide, are calculated for return periods of one, ten, 50, and 100 years. The results are specified at ten sites, ranging in depth from shallow water near the coast to deep water north of Herschel Island. Numerous charts, maps and tables are included and there is a list of terms and definitions and a list of references.

EIS / Esso / Beaufort Sea / waves / wind / storms / meteorology / Herschel Island, Yukon / tidal currents / environmental impact / water levels / oceanography / hydrology

A 169 ICE CONCENTRATION IN THE EASTERN BEAUFORT SEA.
William Stringer et al.
Fairbanks, Alaska : Geophysical Institute, University of Alaska, 1982.
51 pp.

551.468 27 Str

This report analyses the extent and concentration of summer sea ice in the eastern Beaufort Sea, relative to Outer Continental Shelf (OCS) oil and gas activities. The study was conducted because of the Outer Continental Shelf Environmental Assessment Program's (OCSEAP) concern about the environmental aspects of 1) summer time oil spills encountering open water; 2) sea ice used for bird and mammal resting platforms occurring in areas of industrial development; and 3) the possibility of bowhead whales following the pack ice edge and their route possibly coming within a few kilometres of shore and within the zone of OCS oil and gas activities. Most of the data analyses are presented in graphic format.

ice, sea / Beaufort Sea / OCS / OCSEAP / oil spills / pollution, oil / birds / mammals, marine / whales / operations

A 170 ICE CONTROL FOR ARCTIC PORTS AND HARBOURS. FINAL REPORT.
R.J. Gill and A.B. Cammaert.
Niagara Falls, Ontario : Acres Consulting Services Limited, 1983.
2 v.

627.2 Gil

This report, sponsored by the Transportation Development Centre, Transport Canada (TC) and the Canadian Marine Transportation Administration, TC, examines the types of ice problems that may occur in harbours that are operated in ice conditions. Ice control techniques, to be used in conjunction with certain design approaches, are described and evaluated, and criteria for harbour design are addressed. Volume one of the set contains the text of this final report and volume two provides an extensive annotated bibliography.

TC / ice / ice, sea / ice management / Arctic / engineering / ice-breaking vessels / ice-breaking / bibliographies & indices

A 171 ICE EDGE BREAK-UP IN LANCASTER SOUND.
Malcolm Lowings and Erik Banke.
Beaufort EIS Support Document 1982.
Calgary, Alberta : MARTEC Limited, 1982. various pag.

551.343 Low

Prepared for Dome Petroleum Limited, this report investigates some of the factors that determine the position of the landfast ice edge in Lancaster Sound and factors likely to influence its position in the future, including ice dam formation, movement of multi-year ice, ship traffic, and climatic change. The significance of possible ship-related displacement compared to natural advance and retreat and break-up of ice edge is addressed and a summary of relevant ice, climatic, and oceanographic information is presented. A list of references is provided.

Dome / EIS / environmental impact / Lancaster Sound, N.W.T. / ice / ice, sea / wind / waves / climatology / shipping / oceanography / Beaufort Sea

A 172 "Ice Gouging Characteristics and Processes."
Peter W. Barnes, Douglas M. Rearic and Erk Reimnitz.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 185-212.

551.468 7 Ala

This article discusses scouring of the sea floor by ice, which occurs over much of the Arctic Shelf. This scouring disrupts and modifies the seabed affecting sediments, ice zonation and petroleum development activities and occurs where sea ice comes into contact with the sea floor to form ice gouges. Development activities that place pipelines and subsea structures on the sea floor are affected by the forces involved in ice scouring. In this article, earlier work in this topic is updated, new data are summarized, and the gouging process is discussed.

ice, sea / ice scour / Beaufort Sea / Continental Shelf, Alaska / morphology / steel structures / sedimentation / Arctic

A 173 ICE SCOUR BIBLIOGRAPHY.
edited by C. Ross Goodwin, Jean C. Finley and Lynne M. Howard.
Environmental Studies Revolving Funds Report No. 010.
Ottawa, Ontario : Environmental Studies Revolving Funds, 1985.
99 pp.

016.5 Goo Ice

This annotated bibliography contains 379 citations and includes only works on ice scour - defined as the disturbance of the bottom sediments of a water-body by floating ice. No geographic restrictions are placed and the volume contains subject, author, title, geographic and series indices.

ESRF / ice, sea / bibliographies & indices / erosion / ice scour / oceanography / Beaufort Sea / Bering Sea / Chukchi Sea / seas / lakes

A 174 ICEBERG DYNAMICS PROJECT REPORT: VOLUME I: EXPERIMENTAL EQUIPMENT AND PROCEDURES.
edited by A.A. Bruneau and R.T. Dempster.
Calgary, Alberta : Eastcoast Petroleum Operators' Association (EPOA), 1972. 2 microfiche.

MF EPOA 2-1

This is the first of three volumes outlining the Iceberg Dynamics Project carried out off the east coast of Canada, by the Eastcoast Petroleum Operators' Association (EPOA), in 1971. This volume describes the equipment employed during the project, and how it was used. An appendix provides a complete list of the equipment and indicates distribution upon the completion of the project in June 1971. The details of modifications made to the ship used, and a diary of the cruise taken to conduct experiments, are included. Iceberg tracking is described, including wind measurements. Numerous charts and diagrams are used for illustrative purposes.

icebergs / EPOA / drilling, offshore / oil rigs / wind / tidal currents / ice, sea / technology / ships / hydrology / safety measures

A 175 ICEBERG DYNAMICS PROJECT REPORT: VOLUME II: OBSERVATION, DATA AND ANALYSIS.
edited by A.A. Bruneau and R.T. Dempster.
Calgary, Alberta : Eastcoast Petroleum Operators' Association (EPOA), 1972. 3 microfiche.

MF EPOA 2-2

This second volume of three analyses data collected during EPOA's Iceberg Dynamics Project conducted in 1971, off the east coast of Canada. Sea current patterns, wind effects, and the physical characteristics of icebergs, including size, form and stability factors are reported and analysed with the assistance of graphs, charts, photographs and tables.

icebergs / EPOA / drilling, offshore / oil rigs / wind / tidal currents / ice, sea / technology / hydrology / safety measures

A 176 ICEBERG DYNAMICS PROJECT REPORT: VOLUME III: ICEBERG TOWING PROCEDURES.
edited by A.A. Bruneau and R.T. Dempster.
Calgary, Alberta : Eastcoast Petroleum Operators' Association (EPOA), 1972. 2 microfiche.

MF EPOA-2-3

In this third and final volume of the report of EPOA's Iceberg Dynamics Project, the focus is on iceberg towing. It is explained that when an iceberg in the vicinity of a drilling rig, or other stationary operation, is considered to pose a high threat of collision, the decision to tow the iceberg away from that vicinity may be made. This volume discusses iceberg drift, towing strategy and the design and use of towing equipment. A summary list of contents for all three volumes, which comprise this report, is appended to this volume.

icebergs / EPOA / drilling, offshore / oil rigs / wind / tidal currents / ice, sea / technology / hydrology / safety measures

A 177 ICEBERG IMPACT EFFECTS ON DRILLSHIP.
Eastcoast Petroleum Operators' Association (EPOA).
Eastcoast Petroleum Operators' Association: Project #4.
Toronto, Ontario : Foundation of Canada Engineering Corporation Ltd., 1971. 1 microfiche.

MF EPOA 4-1

This study investigates the effects of the impact of small ice floes of land ice origin on a drillship. The study was commissioned to determine the maximum size of an ice floe which may strike the hull of a drillship without causing damage. Estimates are given of forces resulting from such a collision and the size and velocity of the ice floe are varied so as to define critical conditions for ice impact on a drill vessel. The ability of the hull of a drillship to withstand forces resulting from the impact of an ice floe is evaluated. The results of this study are applicable to any region where ice floes threaten offshore activities although the experiments were carried out off the east coast of Canada.

EPOA / icebergs / drillships / drilling, offshore / tidal currents / wind / hydrology / safety measures

A 178 "A Logical Approach To Ice."
K.R. Croasdale and A. Person.
In SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984. 36 pp.

627.98 Arc 1984

When ice moves against a fixed structure, such as a drilling rig, it exerts a load. This paper reviews a general logic for ice loads which recognizes the various limit states that can govern ice loads on fixed structures. Various ice load formulae for narrow and wide, vertical and sloping structures are presented, together with examples, and the Canadian perspective, both in terms of ice load models and experience with actual structures, is given. Numerous diagrams are included and there is a list of references.

conferences / ice / ice, sea / drilling, offshore / ice floes / ice ridges

A 179 MEASUREMENT OF WIND, ICE, AND SURFACE LAYER DRIFT IN VISCOUNT MELVILLE SOUND, SUMMER, 1980. VOLUME 1 - SUMMER 1980.
D.D. Lemon, M.A. Wilson, and L.E. Cuypers.
Beaufort EIS Support Document 1982.
Sidney, British Columbia : Arctic Sciences Ltd., 1981. 152 pp.

551.697 199 Lem v. 1

This study was performed under contract to Dome Petroleum Ltd., as part of their input to the Environmental Impact Statement (EIS) on Beaufort Sea oil production and transportation. Measurements of surface-layer flow in Viscount Melville Sound, N.W.T., were made during the summer of 1980 and simultaneous measurements of the wind field and ice motion in the area were also taken. This volume describes the data collection and processing methods and presents the analysis and results of the study. Tables and maps supplement the text and a list of references is included.

Dome / EIS / environmental impact / Beaufort Sea / hydrocarbon production / transportation / ice, sea / Viscount Melville Sound, N.W.T. / wind / oceanography

A 180 MEASUREMENTS OF WIND, ICE AND SURFACE LAYER DRIFT IN VISCOUNT MELVILLE SOUND, SUMMER 1980. VOLUME 2 - DATA APPENDICES.
D.D. Lemon, M.A. Wilson and L.E. Cuypers.
Beaufort EIS Reference Works 1982.
Sidney, British Columbia : Arctic Sciences Limited, 1981.
various pag.

551.697 199 Lem v. 2

This is the second volume of a study performed under contract to Dome Petroleum Limited as part of their unput to the Environmental Impact Statement (EIS) on Beaufort Sea oil production and transportation. (The first volume is included elsewhere in this bibliography.) Volume 2, which contains the appendices to the study, consists entirely of tables, charts and graphs representing the results of research conducted during the summer of 1980 in Viscount Melville Sound, N.W.T.

Dome / EIS / environmental impact / Beaufort Sea / operations / transportation / ice, sea / Viscount Melville Sound, N.W.T. / wind / oceanography

A 181 MECHANICAL BEHAVIOR OF SEA ICE.
M. Mellor.
U.S. Army Cold Regions Research and Engineering Laboratory Monograph 83-1.
Springfield, Virginia : U.S. National Technical Information Service, 1983. 102 pp.

551.343 Mel

This monograph, prepared as a study text and reference source for a NATO Advanced Study Institute on sea/ice/air interactions, deals with properties of sea ice that are relevant to mechanical behavior of ice on a fairly small scale. The first part of the document is a selective summary of the basic theory which is applicable to ice mechanics. Part two summarizes measured values for common mechanical properties and the third and final part discusses the mechanical behavior of ice that has been fragmented, either by natural processes or human activities. The text is technical in nature, supplemented by charts and graphs, and a list of references cited is included.

ice / ice, sea / hydrology

A 182 "Mesoscale Wind Phenomena Along the Alaskan Beaufort Sea Coast."
Thomas L. Kozo.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 23-45.

551.468 7 Ala

Wind is a major influence on the physical and biological environment of the Alaskan Beaufort Sea. Surface wind conditions influence the times of sea ice break-up or freeze-up, create nearshore currents, move ice floes and oil spills, and affect animal migrations. This article discusses the subsynoptic meteorological networks along the Beaufort Sea coast and shelf, thermally generated mesoscale effects on surface winds, and orographic mesoscale effects on surface winds. Charts and diagrams are used throughout and a list of references is included.

wind / meteorology / Beaufort Sea, Alaskan / Continental Shelf, Canada / climatology

A 183 METHODS OF DETERMINING PIPELINE TRENCH DEPTHS IN THE CANADIAN BEAUFORT SEA.
G.R. Pilkington and R.W. Marcellus.
Calgary, Alberta : s.n., 1981. n.p.

621.867 2 Pil

This paper describes the origin and subsequent disappearance of ice scour on the sea floor in the Beaufort Sea. The various methods that can be used to calculate the depth for sea bed installation of pipelines while protecting the pipelines from scouring are discussed. Diagrams and graphs are included and there is a list of references.

ice, sea / ice scour / pipelines / pipelines, offshore / pipeline construction / Beaufort Sea

A 184 "Observations and Analyses of Sediment-Laden Sea Ice."
Thomas E. Osterkamp and Joan P. Gosink.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 73-93.

551.468 7 Ala

The effects of sediment in ice on light transmission through sea ice cover is examined in this paper. As well, the results and analyses of tests on sediment-laden sea ice cores, and ice samples from the Alaskan Beaufort Sea, and theoretical analyses of the scavenging and filtration processes for entraining sediment in sea ice are discussed. Motion of sediment-laden sea ice may be a notable sediment transport agent and this factor may have significance in the transportation of pollutants such as drilling mud, oil or dredge spoils. This fairly technical paper includes charts and graphs and a list of references.

Beaufort Sea, Alaskan / ice, sea / sedimentation / pollution, industrial / pollution, oil / Alaska

A 185 "Oceanographic Variability in the Operating Environment.
G.T. Needler.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 185-206.

333.823 05 Arc 1980

This is a very technical paper in which the author discusses the nature of oceanographic variability, specifically concentrating on the variability of ocean current systems. The author uses charts and graphs to illustrate this paper and a list of references is appended.

oceanography / tidal currents / icebergs / drilling, offshore / Arctic / ice, sea / Labrador Sea / oil spill research / meteorology / hydrology / workshops / APOA

A 186 "An Overview of Marine Icing Research."
E.P. Lozowski and E.M. Gates.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985.
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. v 2, pp. 6-15.

620.411 3 Off 1985

Exploitation of resources in the northern and eastern coastal regions of Canada requires the use of structures such as offshore platforms, docking facilities and small ships. When these structures are exposed to freezing sea spray, the resulting ice accumulations can appreciably increase static and wind loads on fixed structures and influence the stability of floating structures. In this paper the authors discuss current research in marine icing and evaluate these efforts in terms of the differences such as salinity, droplet size and the dynamics of runback.

conferences / icing / ice, sea / oil rigs / ships / salinity / hydrology / steel structures

A 187 "Pack Ice Interaction with Stamukhi Shoal, Beaufort Sea, Alaska.
Erk Reimnitz and E.W. Kempema.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 159-183.

551.468 7 Ala

Piles of grounded ice on shoals, called stamukhi, protect the inner Alaska Continental Shelf from pack ice forces, allow the growth of relatively smooth, immobile fast ice, and thereby indirectly facilitate the development of oil resources. (The shoals have a direct value in artificial island construction given that each vertical foot of fill costs two to three million dollars.) In this report, Landsat images have been used to show the effects of Stamukhi Shoal on winter and summer ice regimes in the past ten years. (Landsat is a U.S. artificial satellite designed to gather data about the earth's natural resources.) Seafloor morphology and its changes resulting from ice interaction are discussed.

ice, sea / Continental Shelf, Alaska / Beaufort Sea, Alaskan / artificial islands / morphology / stamukhi / bathymetry / ice scour / Stamukhi Shoal

A 188 REVIEW OF THE ENVIRONMENTAL IMPACT STATEMENT: ALASKA HIGHWAY GAS PIPELINE IN THE YUKON TERRITORY.
Canada. Department of the Environment, Pacific and Yukon Region.
Vancouver, British Columbia : Canada. Department of the Environment, 1979. various pag.

330.971 91 IWD

This document presents a Department of the Environment (DOE) review of the Foothills Pipe Lines (South Yukon) Ltd. (FPL(SY)) environmental impact statement (EIS) relative to the Alaska Highway Gas Pipeline (AHGP) proposal. The emphasis is on hydrologic factors along the proposed route and this review examines FPL(SY)'s identification of environmental concerns, proposals for mitigation of the concerns and methods and data upon which these proposals are based.

FPL(SY) / EIS / AHGP / environmental impact / hydrology / streams / slope stability / erosion / sedimentation / ice / frost heaving / water quality / oxygen depletion / DOE / pipeline crossings / icing / reclamation

A 189 "Risk Analysis Methodology for Mobile Offshore Units Operating in Ice Infested Waters."
M.A. Nessim et al.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. H1-H12.

623.812 4 Int 1984

A mobile offshore unit can be moved off location to avoid collision with ice features. However, if the unit is ice-strengthened, it is not necessary to avoid all ice collisions. This technical paper deals with the probabilities of collisions, ice monitoring and disconnection criteria for the mobile units in the case of large ice features. The consequences of ice/mobile offshore unit collisions are examined and two scenarios are considered - permissible collisions with ice features which do not exceed a specified disconnection criterion, and catastrophic collisions with larger ice features which occur if ice monitoring/disconnection systems fail. The paper concentrates on environmental uncertainties associated with the occurrence, size and velocity of ice features. Diagrams are included as is a list of references.

conferences / drilling, offshore / arctic mobile drilling structure / ice, sea / ice management / risk analysis / icebergs

A 190 SEA ICE MORPHOLOGY IN THE BEAUFORT SEA.
Peter Wadhams.
Beaufort Sea Project. Technical Report No. 36.
Victoria, British Columbia : Canada. Department of the Environment, 1975. 66 pp.

551.343 Wadh

Produced under contract to the Ocean and Aquatic Sciences Division of the Department of the Environment (DOE), this technical report describes the topography of the Beaufort Sea ice cover. Studies conducted during the summer of 1974, and the early spring of 1975, are documented here and the results are analysed in some detail. The author then discusses the extent to which sea ice deformation features may govern the long-term spread of oil (from an oil spill or blowout) under ice. This report includes numerous illustrations and a list of references is provided.

DOE / topography / ice / ice, sea / Beaufort Sea / ice ridges / pollution, oil / morphology / hummocks / blowouts / Beaufort Sea Project

A 191 SHORE ICE RIDE-UP AND PILE-UP FEATURES PART I: ALASKA'S BEAUFORT SEA COAST.
Austin Kovacs.
U.S. Army Cold Regions Research and Engineering Laboratory. CRREL Report 83-9.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1983. 59 pp.

551.34 Kov Pt. 1

Recent observations of shore ice pile-up and ride-up along the coast of the Alaskan Beaufort Sea are presented here. Information is given to show that sea ice movement on shore has in the past overridden steep coastal bluffs and has thrust inland over 150m, gouging into and pushing up mounds of beach sand, gravel, boulders and peat and, inland, the tundra material. The resulting ice scar morphology is found to remain for tens of years. The report is illustrated throughout and a list of references cited is provided.

ice / Beaufort Sea, Alaskan / ice, sea / ice scour / morphology / tundra / Arctic / beaches

A 192 SHORE ICE RIDE-UP AND PILE-UP FEATURES PART II: ALASKA'S BEAUFORT SEA COAST - 1983 AND 1984.
Austin Kovacs.
U.S. Army Cold Regions Research and Engineering Laboratory. CRREL Report 84-26.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1984. 33 pp.

551.34 Kov Pt. 2

Observations of shore ice pile-up and ride-up along the Alaskan Beaufort Sea in 1983 and 1984 are presented. This document provides new information on historical accounts of onshore ice movement uncovered since the publication of part I in this series (by the same author and included in this bibliography). As well, an account is given of ice overtopping a concrete caisson exploration island in the Canadian Beaufort Sea. The report is illustrated and a short list of references cited is included.

Beaufort Sea / Beaufort Sea, Alaskan / ice / ice, sea / morphology / ice scour / artificial islands / caisson retained islands / beaches / Arctic

A 193 "A Short Summary of the Physical Environment of the Beaufort Sea and Its Impact on Operations and Structures."
G.R. Pilkington.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. n.p.

622.182 82 CODD 1983

This paper reviews the climate of the Canadian Beaufort Sea and briefly discusses the drill systems developed to operate in this area. The author describes sea ice features, winds, waves, storms and water depths and discusses the operation of drillships, artificial islands and mobile arctic drilling systems in arctic conditions. Illustrations supplement the text of this paper.

climatology / ice, sea / wind / waves / storms / hydrology / artificial islands / bathymetry / ice floes / hummocks / ice islands / ice ridges / drillships / arctic mobile drilling structure / conferences

A 194 "Some Problematic Aspects of Ice Gouging on the Alaskan Shelf of the Beaufort Sea."
W.F. Weeks et al.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 213-236.

551.468 7 Ala

Because of their importance to offshore design in Arctic areas, ice-produced gouges have been the subject of a number of investigations, especially since they were recognized as a recurring seafloor feature in the shallow parts of ice-covered seas. This report discusses some random-appearing aspects of the ice-produced gouges that occur along the coast of the Alaskan Beaufort Sea, between Smith Bay and Camden Bay. Seven years of data, obtained between 1972 and 1979, are used in this study which addresses gouge depths, orientation, frequency and the application of the data accumulated to offshore design concepts. A list of references is included.

ice scour / Beaufort Sea, Alaskan / Continental Shelf, Alaska / Smith Bay, Alaska / Camden Bay, Alaska / technology / oil rigs / pipelines / artificial islands / bathymetry / ice, sea

A 195 SOME REMARKS ON THE UNUSUAL BEAUFORT SEA ICE CONDITIONS IN SUMMER 1975.
Gerd Wendler and K.O.L.F. Jayaweera.
University of Alaska. Geophysical Institute Report No. UAG R-246. Sea Grant Report No. 76-7.
Fairbanks, Alaska : University of Alaska. Geophysical Institute, 1976.
28 pp.

551.343 Wen

In the summer of 1975 the sea ice conditions between Point Barrow and Prudhoe Bay, Alaska, were the most severe since 1898, when the ice did not move away from shore at all. In 1975 the ice movement started later than in any year since that time and was incomplete. This report discusses the meteorological aspects of this situation and the economic ramifications because the need to resupply the Prudhoe Bay oil fields by barges could not be met as planned. The authors present the reasons for these unusual ice conditions, using illustrations to supplement the text. A list of references is provided.

ice, sea / Point Barrow, Alaska / Prudhoe Bay, Alaska / meteorology / wind / ice / Arctic / socio-economic impacts / drilling, offshore / transportation, marine / Beaufort Sea

A 196 "Spray Ice Formation, Characteristics, and Adhesion to Ship and Structure Coatings."
W.M. Sackinger, H.D. Shoemaker and C. Feyk.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
12 pp.

620.411 3 AOTC 1986

Sea spray ice accretion on the superstructures of drilling structures, ships and service vessels can be very dangerous, and this phenomenon can occur very rapidly. This paper describes U.S. Department of Energy sponsored research which is focused on the characterization of naturally-formed spray ice and the determination of the mechanical properties of the bond between sea spray ice and potentially useful coatings. Salinity, density and structure of spray ice examples are examined. It is reported that weather strongly influences the accumulation of natural sea ice accretion, and the four types of ice which can form. A list of references is provided and there are numerous illustrations.

conferences / ice, sea / icing / oil rigs / ships / drilling, offshore / salinity

A 197 STORM SURGES - METEOROLOGICAL OCEAN TIDES.
T.S. Murty.
Canadian Bulletin of Fisheries and Aquatic Sciences ; 212.
Ottawa, Ontario : Canada. Department of Fisheries and Oceans, 1984.
897 pp.

551.470 8 Mur

This book deals with all the meteorological and oceanographical aspects of storm surges and makes extensive use of numerical finite-difference methods. In addition, analytical methods, empirical methods, graphical techniques, statistical techniques, finite-element methods and laboratory and hydraulic methods are discussed. Case studies of storm surges in various water bodies around the globe are treated in considerable detail. A comprehensive bibliography is included.

meteorology / oceanography / wind / ice / seas / storms

A 198 "Structure of First-Year Pressure Ridge Sails in the Prudhoe Bay Region."
Walter B. Tucker, Devinder S. Sodhi and John W. Govoni.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 115-135.

551.468 7 Ala

Sea ice ridges constitute one of the major hazards to hydrocarbon exploration and production in the Beaufort Sea. (Normal surface transportation is virtually impossible in heavily ridged seas; oil rig and pipeline design concepts must consider sea ice ridges.) The purpose of this paper is to increase the small data base and understanding of morphological features of free floating ice ridges. The Prudhoe Bay field data include geometry of ridges and measurements of the blocks incorporated in them. Ridge height and widths are examined as well as slope angles, variations of ice-block thickness within a ridge, and the top-surface area of measured blocks. This paper is illustrated and a list of references is included.

Beaufort Sea, Alaskan / Prudhoe Bay, Alaska / ice, sea / ice ridges / morphology / geometry / ice management / data bases / Alaska

A 199 "Structure, Salinity and Density of Multi-Year Sea Ice Pressure Ridges."
J.A. Richter-Menge and G.F.N. Cox.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985.
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. vol. 2, pp. 194-198.

620.411 3 Off 1985

In this paper, data are presented on the variation of ice structure, salinity and density in multi-year pressure ridges from the Beaufort Sea. The paper is illustrated and the authors examine the data from sample analyses and discuss the results. A list of references is provided.

conferences / ice / ice, sea / ice ridges / Beaufort Sea / salinity / hydrology

A 200 A STUDY OF ICE CONDITIONS ALONG A YEAR ROUND SHIPPING ROUTE FROM THE BERING STRAIT TO THE CANADIAN BEAUFORT SEA.
D.F. Dickins Engineering Consulting.
Beaufort EIS Reference Works 1982.
Yellowknife, Northwest Territories : D.F. Dickins Engineering Consulting, 1979. various pag.

551.342 Dic

Prepared for Canadian Marine Drilling Ltd. (Canmar), this report examines ice conditions along a 1700 kilometer year-round marine shipping route, from Bering Strait to the Canadian Beaufort Sea. The ice conditions are evaluated using over 400 satellite images, all available ice charts, and other related published data. 1975 is discussed as an extreme year and compared with probability statistics. The study concludes that for at least nine years out of ten, multi-year ice will not be a significant factor in hindering vessel transit but in an extreme year may entail delays in the order of 40 to 70 hours on any given shipment. Appendices, including a list of references, tables, summary sheets and graphs, make up more than one-half of this report.

Canmar / ice / ice, sea / shipping / transportation, marine / Beaufort Sea / EIS / ice ridges / Bering Strait

A 201 STUDY OF ICE CONDITIONS IN NAVIGATIONAL CHANNELS, VISCOUNT MELVILLE SOUND TO SOUTHERN BEAUFORT SEA.
Albery, Pullerits, Dickson & Associates.
Beaufort EIS Support Document 1982.
Don Mills, Ontario : Albery, Pullerits, Dickson & Associates, 1978.
27 pp.

551.468 7 Alb

The summaries of sea ice and surface weather data presented in this support document were prepared as the first phase of a study to evaluate the economic feasibility of shipping oil from Tuktoyaktuk, on the Beaufort Sea, to Bridport Inlet on Melville Island. The principal objective of the ice analysis is to generate parameters which could be used in assessing ship transit times and in establishing vessel design criteria. The data base from which information for analysis was taken included Landsat (a U.S. land based satellite) imagery. The study results are presented on summary sheets which tabulate ice concentrations and thickness of ice and all interpretation of the data is aimed at finding the most favourable shipping route. The report, which was prepared for Dome Petroleum Limited, is illustrated and contains a list of references.

ice, sea / climatology / transportation, marine / shipping / Tuktoyaktuk, N.W.T. / Beaufort Sea / Bridport Inlet, N.W.T. / Melville Island, N.W.T. / Dome / EIS / ice

A 202 SUPERSTRUCTURE ICING STUDY.
James L. Wise and Albert L. Cumiskey.
National Oceanic and Atmospheric Administration Contract NA 79RACOO132.
Anchorage, Alaska : Arctic Environmental Information and Data Centre, 1980. 1 microfiche.

MF Wis

This study, conducted in the Northeast Pacific, consists of three major facets: 1) acquisition of marine structure icing data; 2) integration and correlation of the factors that affect icing accumulation rates; and 3) application of the correlations so that the mariner or forecaster can accurately predict icing accumulation rates. The report defines marine structures as ships, boats, stationary drillships, or any structure surrounded by or in proximity of the ocean. Included in the report are charts which were developed to predict icing accumulation rates, a map depicting probable areas of most frequent and most heavy icing, and a list of references.

Bering Sea / Alaska / Gulf of Alaska / ice, sea / ships / drillships / oil rigs / safety measures / wind / waves / icing / AEIDC / climatology

A 203 UNDERSTANDING THE ARCTIC SEA FLOOR FOR ENGINEERING PURPOSES.
National Research Council: Committee on Arctic Seafloor Engineering.
U.S. Army Corps of Engineers Special Report 83-25.
Washington, Dist. of Columbia : National Academy Press, 1982.
141 pp.

624.15 Nat

This report identifies and assesses those Arctic sea floor phenomena that influence the design and operation of facilities and platforms for exploring and producing oil, gas and hard minerals both on and under the sea floor. The effects of thaw subsidence, erosion, permafrost (which is found extensively beneath the sea floor of the Beaufort Sea) and frost heave are examined. Concerns regarding the coupling effects of wave and ice forces with sea floor-founded structures are identified and while they are closely examined in this report, recommendations for further study in this area are made. A list of references is included.

Arctic / engineering / ice, sea / steel structures / oil rigs / waves / erosion / permafrost / frost heaving / technology / Continental Shelf, Alaska / ice scour / geotechnology / soils / hydrology

A 204 "Use of Mathematical Models to Estimate Ice Scour."
H.V. Kivisild.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD), [TEXTS OF PAPERS PRESENTED]. EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

Two basic methods are available to estimate ice scour on natural oceanbeds: 1) statistics derived from scour records; and 2) scour depths estimated from the physics of ice-water-soil interaction. On natural oceanbeds, scour marks have been shown to provide reasonable basis for estimating scour with a given frequency in a given location. The methods to apply survey records to estimate scour depths with various risks are discussed in this paper and several idealized mathematical models are presented.

ice / ice scour / icebergs / conferences / ice ridges / mathematics / hydrology

A 205 WATER QUALITY (MACKENZIE RIVER BASIN STUDY REPORT, SUPPLEMENT, 9). A REPORT UNDER THE 1978-81 FEDERAL-PROVINCIAL STUDY AGREEMENT RESPECTING THE WATER AND RELATED RESOURCES OF THE MACKENZIE RIVER BASIN.
D.P. Blachford, A. Demayo and Wm. Gummer.
Mackenzie River Basin Study Report Supplement 9.
s.l. : Canada. Inland Waters Directorate, Environment Canada, 1985. 201 pp.

557.483 091 MRBC

The Mackenzie River basin has been undergoing extensive natural resource development activity in recent years. This report is submitted in support of the belief that a knowledge base of the northern environment is needed upon which to build policies to ensure biological health in the region. Prepared for the Mackenzie River Basin Committee, the report describes the general state, seasonal and spatial trends of physical, chemical, nutrient, metal and organic contaminent parameters of the major subbasins of the Mackenzie River basin. Changes to the present monitoring design and strategy, particularly in sampling procedures, are recommended to increase the amount of information that can be obtained from collected data.

Mackenzie River / Northwest Territories / Alberta / Saskatchewan / British Columbia / Yukon Territory / water quality / environmental monitoring / limnology / pollution, industrial / ecosystems, aquatic / biology, aquatic

A 206 WINDS, WAVES AND STORMS IN THE SOUTHERN BEAUFORT SEA: A SPECIAL REPORT FOR ELF OIL EXPLORATION AND PRODUCTION CANADA LTD.
John C. Freeman et al.
Houston, Texas : Institute for Storm Research, 1971. 14 microfiche.

MF APOA 13-2

This report presents meteorological and oceanographic information useful in planning offshore operations in the southern Beaufort Sea. The data was compiled for Elf Oil Exploration and Production Canada Ltd. In three volumes, the information is presented in the form of narratives, tables, charts and graphs for both usual and extreme weather conditions, consisting of wind, waves and general climatological information. The report is based on 15 years of collected data from 1954-1968. Each volume consists largely of charts and tables. Volume I covers wind distribution, volume II wave distribution and duration, and volume III storm conditions, calibration of forecast methods for the Beaufort Sea and a calendar of extremes for winds and waves. Volume I contains a list of contents for all three volumes.

Elf Oil Exploration & Production Co. Canada Ltd. / Beaufort Sea / exploration / meteorology / climatology / wind / waves / storms / oceanography / hydrology

MAMMALS

A 207 AERIAL SURVEYS OF BOWHEAD WHALES AND OTHER MARINE MAMMALS.
Wayne E. Renaud and Rolph A. Davis.
Beaufort EIS Reference Works 1982.
Toronto, Ontario : LGL Environmental Research Associates, 1981.
55 pp.

639.979 5 Ren

In August and September 1980, three aerial surveys of waters north of Tuktoyaktuk Peninsula were carried out, for Dome Petroleum Limited, to assess the use of these waters by bowhead whales, which are recognized internationally as an endangered species. The study area includes a proposed site for construction of an artificial island to ascertain numbers, distribution and movement patterns of bowhead whales in the area, prior to construction. The results of the surveys are presented in this report and information is also provided on ringed seals seen in the study area. Maps, tables, charts and photographs illustrate this report and a list of references is included.

Tuktoyaktuk Peninsula, N.W.T. / Dome / whales / seals / EIS / environmental impact / Beaufort Sea / artificial islands

A 208 AERIAL SURVEYS OF ENDANGERED WHALES IN THE BEAUFORT SEA, CHUKCHI SEA, AND NORTH BERING SEA: FINAL REPORT, FALL 1980.
D.K. Ljungblad.
Prepared for the Bureau of Land Management.
NOSC Technical Document No. 449.
San Diego, California : Naval Ocean Systems Center, 1981. 294 pp.

639.979 5 Lju

Aerial surveys of bowhead whales, and other marine mammals, were carried out from 17 April to 4 November 1980 in the Beaufort, Chukchi and Bering Seas. The object of the study was to investigate the occurrence, population density, distribution and behavior patterns of the whales in and about the Beaufort Sea oil lease areas, and the results are given in considerable detail. The background to the study and the methods applied are explained and a large number of graphs outline flight details and sightings.

whales / Alaska / North Slope, Alaska / Beaufort Sea / Chukchi Sea / Bering Sea / mammals, marine / ice, sea / aquatic habitats / seas / exploration / hydrocarbon production

A 209 AERIAL SURVEYS OF ENDANGERED WHALES IN THE NORTHERN BERING, EASTERN CHUKCHI AND ALASKAN BEAUFORT SEAS, 1984: WITH A SIX YEAR REVIEW, 1979-1984.
Donald K. Ljungblad et al.
U.S. Department of the Navy. Naval Ocean Systems Center Technical Report 1046.
San Diego, California : Naval Oceans Systems Center, 1985. 315 pp.

333.959 Ljun

Aerial surveys and acoustic recordings of bowhead whales and, secondarily, other marine mammals, which were made from mid-April through mid-May and mid-July through October 1984 in the northern Bering, eastern Chukchi and Alaskan Beaufort Seas, are the subject of this report. The 1984 investigations of the distribution, abundance, and behavior of endangered whales are summarized and polar bear, walrus and ringed seal sightings are recorded. These surveys have been ongoing since 1979 and this report includes a review of the data gathered on aerial surveys between 1979 and 1984. A major portion of this document consists of charts and tables. References are provided.

whales / Bering Sea / Chukchi Sea / Beaufort Sea, Alaskan / bears, polar / walruses / seals / environmental monitoring

A 210 AN ANALYSIS OF THE CONCERNS FOR THE PORCUPINE CARIBOU HERD IN REGARD TO AN ELEVATED PIPELINE ON THE YUKON COASTAL PLAIN.
D.C. Thompson, K.H. McCourt and R.D. Jakimchuk.
Beaufort EIS Reference Works 1982.
s.l. : Renewable Resources Consulting Services Ltd., 1978. 88 pp.

333.959 Tho

Prepared for Dome Petroleum Ltd., this study reviews the timing and intensity of use by the Porcupine caribou of the coastal plain, and assesses the potential impact of an elevated pipeline on the Porcupine herd. A review of the concerns expressed by participants in public hearings related to the Arctic Gas pipeline application is included. Suggestions for terms and conditions which should be applied to the construction and operation of such a pipeline, in order to keep impact to an acceptable minimum, are included. Maps are used to show the range of the Porcupine caribou, the direction of movement and boundaries of calving areas. A list of literature cited is provided.

EIS / Dome / environmental impact / pipelines / pipeline routes / caribou, Porcupine / public hearings / Arctic Gas / environmental protection / Yukon Territory

A 211 BALAENA MYSTICETUS: WHALES, OIL, AND WHALING IN THE ARCTIC.
Mark A. Fraker.
edited by Patricia E. Starratt.
Anchorage, Alaska : Sohio Alaska Petroleum Company and BP Alaska Exploration Inc., 1984. 63 pp.

599.51 Sta

This book discusses the impact of the whaling industry on bowhead whales and the effects on the whales of hydrocarbon exploration and production activities in their natural habitat. The focus is on preserving the whales and, in addition, this study reports on contact with oil, the size of stocks and the general behavioral patterns of whales in the vicinity of petroleum operations. There are many colour photographs and charts throughout the book and a list of references is provided.

whales / Beaufort Sea / artificial islands / northern energy development / hunting / native peoples / Alaska / socio-economic aspects / pollution, oil

A 212 BEHAVIOR, DISTURBANCE RESPONSES AND DISTRIBUTION OF BOWHEAD WHALES (BALAENA MYSTICETUS) IN THE EASTERN BEAUFORT SEA, 1980-84.
edited by W. John Richardson.
Bryan, Texas : LGL Ecological Research Associates, Inc., 1985.
300 pp.

639.979 5 Ric

Prepared for the U.S. Minerals Management Service, this volume presents the results of studies, conducted between 1980 and 1984, to determine the effects of noise and other pollutants on the behavior of the bowhead whales which inhabit the eastern Beaufort Sea. Various charts and graphs illustrate this document and each main section contains a list of references.

Beaufort Sea / whales / pollution, noise / pollution, oil / pollution, industrial / northern energy development / drilling, offshore

A 213 BEHAVIOR, DISTURBANCE RESPONSES AND DISTRIBUTION OF BOWHEAD WHALES BALAENA MYSTICETUS IN THE EASTERN BEAUFORT SEA, 1982.
edited by W. John Richardson.
Bryan, Texas : LGL Ecological Research Associates, Inc., 1983.
357 pp.

639.979 5 Ric

This report outlines the 1982 study of the normal behavior and disturbance responses of summering bowhead whales in the eastern Beaufort Sea. Normal behavior and behavior in the presence of industrial activities were examined, specifically the potential effects, on the bowhead whales, of offshore oil and gas exploration and development in the Beaufort Sea. The report is supported by a large number of charts as well as several lists of related references.

whales / pollution, noise / drillships / Beaufort Sea / Mackenzie Delta, N.W.T. / exploration / hydrocarbon production / drilling, offshore / natural gas / environmental impact / dredging / artificial islands / zooplankton / Tuktoyaktuk, N.W.T. / Herschel Island, Yukon / ecology, marine

A 214 BEHAVIOR, DISTURBANCE RESPONSES AND DISTRIBUTION OF BOWHEAD WHALES BALAENA MYSTICETUS IN THE EASTERN BEAUFORT SEA, 1983.
edited by W. John Richardson.
Bryan, Texas : LGL Ecological Research Associates, Inc., 1984.
361 pp.

639.979 5 Ric

These observations of the behavior of bowhead whales, in the summer of 1983, were part of a broader analysis of the potential effects, on these whales, of offshore oil and gas exploration and development in the Beaufort Sea. Since bowhead behavior differs among years, this 1983 study examines behavior in both undisturbed and disturbed situations during the same season. Considerable use is made of charts and several reference lists are included.

whales / pollution, noise / drillships / Beaufort Sea / Mackenzie Delta, N.W.T. / exploration / hydrocarbon production / drilling, offshore / natural gas / environmental impact / dredging / artificial islands / zooplankton / Tuktoyaktuk, N.W.T. / Herschel Island, Yukon / ecology, marine

A 215 BEHAVIOR, DISTURBANCE RESPONSES AND FEEDING OF BOWHEAD WHALES IN THE BEAUFORT SEA, 1980.
edited by W. John Richardson.
Bryan, Texas : LGL Ecological Research Associates, Inc., 1981.
273 pp.

639.979 5 Ric

The potential for disturbance of bowhead whales due to offshore oil and gas exploration in the Beaufort Sea is the basis for this study. The report examines the normal behavior of bowheads, disturbance responses of bowheads and characteristics of waterborne noise, as well as characteristics of bowhead feeding areas and feeding behavior.

whales / pollution, noise / Beaufort Sea / Mackenzie Delta, N.W.T. / exploration / drilling, offshore / natural gas / hydrocarbon production / environmental impact / dredging / artificial islands / Tuktoyaktuk, N.W.T. / ecology, marine / zooplankton / aquatic habitats

A 216 BIBLIOGRAPHY OF BOWHEAD WHALES, WHALING, AND ALASKAN INUPIAT AND YUPIK WHALING COMMUNITIES.
Shirleen Smith.
Edmonton, Alberta : Boreal Institute for Northern Studies, 1986.
55 pp.

016.639 28 Smi

The central theme of this bibliography is the subsistence hunting of bowhead whales by the Inupiat and Yupik peoples of Alaska. Included are entries on the status of bowhead stocks and habitat, the economy and culture of the Inupiat people, the history of bowhead whale use by Inupiat, Yupik and others, and policies and agreements relating to bowhead management. There are over 500 entries, arranged alphabetically by author, and there is a subject index.

bibliographies & indices / whales / Alaska / Inupiat / Yupik / socio-economic aspects / history / aquatic habitats / government / regulations / hunting / native harvest

A 217 BOWHEAD AND WHITE WHALE MIGRATION, DISTRIBUTION, AND ABUNDANCE IN THE BERING, CHUKCHI AND BEAUFORT SEAS, 1975-78.
Howard W. Braham, Bruce D. Krogman and Geoffrey M. Carroll.
NOAA Technical Report NMFS SSRF-778.
s.l. : U.S. Department of Commerce. National Oceanic and Atmospheric Administration, 1984. 39 pp.

599.5 Bra

This study, conducted under contract to the Outer Continental Shelf Environmental Assessment Program (OCSEAP), reviews the results of field research on bowhead and white whales in the Bering, Chukchi and Beaufort Seas. The study determines the general distribution, migration, and abundance of these whales in spring and autumn. The field research methods are described and the results are presented in graphic and tabular format. A list of references is provided.

Continental Shelf, Alaska / Bering Sea / Chukchi Sea / Beaufort Sea, Alaskan / whales / OCSEAP

A 218 THE BOWHEAD WHALE.
Helen Gerson and Richard Gerson.
Toronto, Ontario : World Wildlife Fund Canada and Canada. Department of Fisheries and Oceans, 1986. 22 pp.

599.51 Ger

This illustrated brochure presents information on the history, population size, distribution, migration, and biology of the bowhead whale in the Arctic. The information has been collected from whaling journals and log books, biologists and the Inuit people. The text of the booklet is presented in English and Syllabics.

whales / Arctic / biology / ecosystems, aquatic / Inuit / hunting

A 219 BOWHEAD WHALE MONITORING STUDY IN THE SOUTHEAST BEAUFORT SEA, JULY-SEPTEMBER 1984.
Lois A. Harwood and Gary A. Borstad.
Environmental Studies Revolving Funds Report No. 009.
Ottawa, Ontario : ESL Environmental Sciences Ltd., 1985. 99 pp.

599.51 Har

Documented here are the results of aerial surveys, conducted in the southeast Beaufort Sea, to note the abundance and distribution of bowhead whales in relation to industrial activity. The survey design and procedures are described and the results are reproduced in considerable detail in the text, maps and charts. A comprehensive list of references is included.

whales / ESRF / Beaufort Sea / northern energy development / drilling, offshore / aquatic habitats / pollution, oil / pollution, noise

A 220 DIET OF RINGED SEALS (PHOCA HISPIDA) IN THE CANADIAN HIGH ARCTIC.
Michael W. Bradstreet and Kerwin J. Finley.
Toronto, Ontario : LGL Environmental Research Associates, 1983.
28 pp.

599.748 Bra

Prepared for Petro-Canada Exploration Inc. this report discusses the diet of ringed seals based on samples taken at Pond Inlet, Baffin Island and Ellesmere Island. The results of analyses of stomach weights and stomach contents are examined and the authors consider regional, local, seasonal, age-related and sex-related differences in diet. The document includes many tables and a list of references is provided.

seals / Pond Inlet, N.W.T. / Baffin Island, N.W.T. / Ellesmere Island, N.W.T. / nutrition / fish / crustaceans / benthic invertebrates / Petro-Canada

A 221 THE DISTRIBUTION AND ABUNDANCE OF RINGED AND BEARDED SEALS IN THE EASTERN BEAUFORT SEA, 1974-1979.
Ian Stirling, M.C.S. Kingsley and Wendy Calvert.
Beaufort EIS Reference Works 1982.
Edmonton, Alberta : Canadian Wildlife Service, 1981. 70 pp.

333.959 Sti

Prepared for Dome Petroleum Limited, Esso Resources Canada Limited and the Department of Indian Affairs and Northern Development (DIAND), this Environmental Impact Statement (EIS) support document provides baseline information on the distribution and abundance of ringed and bearded seals in the eastern Beaufort Sea. The authors also identify critical areas and times in the annual cycles of the seals that might warrant protection from, or modification of, hydrocarbon exploration and production activities. The results of aerial surveys of the seals over six years are analysed. A list of references cited is provided.

Dome / Esso / DIAND / EIS / Beaufort Sea / seals / hydrocarbon production / exploration / aquatic habitats / ice, sea / environmental impact

A 222 DISTRIBUTION AND ABUNDANCE OF SEALS IN THE BEAUFORT SEA, AMUNDSEN GULF, AND PRINCE ALBERT SOUND, 1984.
Michael C.S. Kingsley.
Environmental Studies Revolving Funds Report No. 025.
Ottawa, Ontario : Canada. Department of Fisheries and Oceans, 1986. 16 pp.

333.959 Kin

This study reports the results of ringed seal monitoring surveys, flown over the Beaufort Sea, and provides information on ice conditions and seal population figures in the Beaufort Sea, Amundsen Gulf and Prince Albert Sound. The ringed seal is a widespread inhabitant of Arctic seas, being well adapted to live in unbroken fast ice. It is also a prominent component of the Arctic marine ecosystem in which it is a staple food of the polar bear. Because of its intrinsic importance and because any serious disruption in the marine ecosystem would affect populations of such a species - a large mammal near the top of the food chain - the ringed seal was selected as the subject species for this environmental baseline and monitoring study.

seals / Beaufort Sea / Amundsen Gulf, N.W.T. / Prince Albert Sound, N.W.T. / ecosystems, aquatic / Arctic / aquatic habitats / environmental impact

A 223 DISTRIBUTION, NUMBERS, PRODUCTIVITY OF THE WESTERN ARCTIC STOCK OF BOWHEAD WHALES IN THE EASTERN BEAUFORT SEA AND AMUNDSEN GULF, SUMMER 1981.
Rolph A. Davis et al.
Toronto, Ontario : LGL Limited Environmental Research Associates, 1982. 134 pp.

639.979 5 Dav

This study estimates the size of the western Arctic population of bowhead whales, the production of calves, and determines the distribution, abundance, size and movements of bowheads on their summer range in the eastern Beaufort Sea. The methods employed to conduct the study are outlined and the results are presented in considerable detail. Colour photographs are used for illustrative purposes and a list of references cited is included.

Arctic / whales / Beaufort Sea / Amundsen Gulf, N.W.T.

A 224 DISTRIBUTION OF BOWHEAD WHALES AND OTHER MARINE MAMMALS IN THE SOUTHEAST BEAUFORT SEA AUGUST-SEPTEMBER 1983.
Peter J. McLaren and Rolph A. Davis.
Environmental Studies Revolving Funds Report No. 001.
Toronto, Ontario : LGL Limited, 1985. 62 pp.

333.959 McL

This volume reports on aerial surveys which were conducted in the southeast Beaufort Sea to document the numbers and distributions of bowhead whales and other marine mammals. The study area is defined and the results of the surveys are presented here, with the use of maps and tables. This research was sponsored by the Environmental Studies Revolving Funds (ESRF) in response to concerns about the possible disturbance of marine mammals caused by industrial activities, including hydrocarbon exploration, in the region.

ESRF / whales / seals / Beaufort Sea / northern energy development / environmental impact / aquatic habitats / ice, sea

A 225 THE DISTRIBUTION OF RINGED SEALS IN RELATION TO WINTER ICEBREAKING ACTIVITIES NEAR MCKINLEY BAY, N.W.T. JANUARY-JUNE 1980.
W. George Alliston.
Beaufort EIS Reference Works 1982.
Toronto, Ontario : LGL Limited, 1980. 52 pp.

333.959 All

Prepared for Dome Petroleum Limited, this support document reports on a study designed to determine the possible influences of winter ice-breaking activity in the landfast ice off McKinley Bay, Tuktoyaktuk Peninsula, on the distribution of ringed seals during winter and the spring haul-out period. A comparison is made between an area where ice-breaking had occurred, with an adjacent control area where no ice-breaking activity took place. The methods employed to conduct the study are described and the results are discussed. A list of literature cited is included.

Dome / EIS / environmental impact / ice-breaking vessels / ice, sea / seals / McKinley Bay, N.W.T. / Tuktoyaktuk Peninsula, N.W.T.

A 226 "Disturbance Responses of Bowheads, 1982 [unpublished manuscript]."
W. John Richardson, Randall S. Wells and Bernd Wursig.
In BEHAVIOR, DISTURBANCE RESPONSES AND DISTRIBUTION OF BOWHEAD WHALES BALAENA MYSTICETUS IN THE EASTERN BEAUFORT SEA, 1982.
edited by W.J. Richardson.
Bryan, Texas : LGL Environmental Research Associates, 1982.
pp. 118-215.

639.979 5 Rich

This unpublished reprint documents behavioral responses of bowhead whales to activities associated with offshore oil and gas exploration and development which were observed in the Canadian Beaufort Sea during August 1982. The short-term behavioral reactions of bowheads to noise and other stimuli are assessed, including boat and aircraft traffic, seismic exploration, dredging and drilling. The methods employed to conduct the tests, results obtained, and observations made are discussed. A list of literature cited is provided.

whales / Beaufort Sea / environmental impact / exploration / operations / drilling, offshore / pollution, noise / seismic exploration / dredging / drillships / Tarsiut

A 227 EFFECTS OF SEISMIC ACTIVITY ON THE BEHAVIOR AND ACTIVITY OF MUSKRATS ON THE MACKENZIE DELTA.
David A. Westworth.
Canada. Department of Indian Affairs and Northern Development. Northern Affairs Program. Environmental Studies No. 15.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1980. 68 pp.

333.959 Wes

This report was prepared under contract for the Arctic Land Use Research Program, Department of Indian Affairs and Northern Development (DIAND). The author addresses the question of whether or not muskrat populations on the Mackenzie Delta have been or are being adversely affected by oil and gas seismic exploration activities. The study methods are explained and the results are presented and discussed. The report is illustrated and a list of references cited is included.

DIAND / muskrat / Mackenzie Delta, N.W.T. / seismic exploration / exploration / pollution, noise / environmental impact

A 228 GUIDE TO WATCHING WHALES IN CANADA.
Mimi Breton.
Ottawa, Ontario : Canada. Department of Fisheries and Oceans, 1986.
54 pp.

Pam 1986-79

Intended for the general reader, this illustrated booklet presents guidelines for use by whale watchers at various locations throughout Canada. The intent of the guidelines is to avoid disturbance to whales' traditional feeding, mating and migration areas. Information on distinguishing whale groups and identifying species is included as well as descriptions of the species, notes on their status (endangered or otherwise), habitat, feeding habits, reproduction, behavioral patterns and swimming speeds. A short list of suggested reading is included.

whales / aquatic habitats / biology / DFO

A 229 "Impact of Oil Production on Marine Mammals."
A.W. Mansfield.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 334-353.

333.823 05 Arc 1980

This paper discusses the effects of oil spills and oil production, especially shipping, on marine mammals. The mammals considered are whales and seals although brief mention is made of the sea otter and the walrus. Specific effects on the mammals' habitat and population figures are discussed and there is a brief reference to previous unsatisfactory environmental studies on marine mammals. The need for a clear statement of the possible hazards to a species, or a population, is expressed together with the need to plan carefully to mitigate these hazards.

whales / seals / sea otters / walruses / pollution, oil / environmental protection / northern energy development / Beaufort Sea / aquatic habitats / transportation, marine / environmental impact / Arctic / shipping / workshops / APOA

A 230 INFLUENCE OF THE NORMAN WELLS OILFIELD EXPANSION PROJECT ON SNOW GEESE.
P.N. Boothroyd.
Winnipeg, Manitoba : Canadian Wildlife Service, 1986. 60 pp.

333.958 Boo

This report marks the completion of a three year study on the influence of Esso's expansion project at Norman Wells on spring use of local staging habitats by snow geese. (Esso's expansion project involves the construction of six production islands in the Mackenzie Delta, the drilling of nearly 200 wells and installation of a pipeline gathering system for transportation purposes.) The results of aerial waterfowl surveys of the Mackenzie River are reported and compared to earlier observations. The influence of the oilfield expansion project is considered to be minor and short term. Recommendations are given pertaining to the control of helicopter flights during each spring breakup period over the life of the project. Diagrams are included and there is a short list of references cited.

Esso / Norman Wells, N.W.T. / operations / snow geese / wildlife habitats / migration of birds / environmental impact / environmental monitoring / Mackenzie River / artificial islands / helicopters

A 231 INTER-ISLAND MOVEMENTS OF PEARY CARIBOU ACROSS THE SEA ICE OF PRINCE OF WALES STRAIT BETWEEN BANKS AND VICTORIA ISLANDS.
Frank L. Miller.
[Edmonton, Alberta] : Canada, Department of the Environment, Canadian Wildlife Service, 1986. 43 pp.

599.735 7 Mill

This report was prepared for, and supported by, the Northern Oil and Gas Action Program (NOGAP), the Department of Indian Affairs and Northern Development (DIAND) and the Canadian Wildlife Service of the Department of the Environment (DOE). The author describes the methodology of the project which includes an annotated bibliography on Peary caribou literature, to be published separately, and aerial searches conducted to obtain evidence of inter-island movements of caribou. The results and some discussion of the aerial searches are included.

NOGAP / DIAND / DOE / Canadian Wildlife Service / caribou / Prince of Wales Strait, N.W.T. / Banks Island, N.W.T. / Victoria Island, N.W.T.

A 232 INVESTIGATION OF THE OCCURRENCE AND BEHAVIOR PATTERNS OF WHALES IN THE VICINITY OF THE BEAUFORT SEA AREA: FINAL REPORT FOR THE PERIOD OCTOBER 1, 1978 THROUGH NOVEMBER 30, 1979.
Naval Arctic Research Laboratory.
Prepared for U.S. Dept. of the Interior, Bureau of Land Management.
Barrow, Alaska : Naval Arctic Research Laboratory, n.d. 753 pp.

599.509 163 27 Nav

This report covers the results of investigations and observations, made in the spring, summer and fall of 1979, to ascertain the environmental impacts on the marine and coastal environments of the outer continental shelf, and the coastal areas, which may be affected by oil and gas development. The results presented in this volume are a compendium of reports submitted by an interdisciplinary project staff. The content is technical and very detailed and includes references, maps, charts and photographs.

whales / Arctic / mammals, marine / Beaufort Sea / aquatic habitats / plankton / Bering Sea / Continental Shelf, Alaska / Arctic / Chukchi Sea / hydrocarbon production / environmental impact / ice, sea / pollution, industrial / ecology, marine / biology, aquatic

A 233 THE LIFE OF THE RINGED SEAL.
Helen Gerson and Richard Gerson.
Toronto, Ontario : World Wildlife Fund Canada and Canada. Department of Fisheries and Oceans, 1986. n.p.

599.746 Ger

The ringed seal, which is found all across the Arctic, provides the Inuit people with meat, fuel, and skins for clothing. It is the ringed seal that has allowed the Inuit culture to become established and to survive in the harsh environment of the Arctic. The information in this booklet is based mainly on studies conducted prior to 1980, as well as on Inuit knowledge, and it provides an understanding of the life history of the ringed seal and population size estimates. The brochure is illustrated and the text is presented in English and Syllabics.

seals / Arctic / Inuit / hunting / bears, polar / fox, Arctic / nutrition / biology

A 234 OBSERVATIONS ON THE BEHAVIOR OF BOWHEAD WHALES IN THE PRESENCE OF OPERATING SEISMIC EXPLORATION VESSELS IN THE ALASKAN BEAUFORT SEA.
Donald K. Ljungblad et al.
OCS Study MMS 85-0076.
Anchorage, Alaska : United States Minerals Management Service, 1985. various pag.

333.959 Lju

This document was prepared for the United States Minerals Management Service, Alaska Outer Continental Shelf (OCS) Region. The object of this study was to gauge bowhead whale behavioral response to seismic activities and to determine at what distance from an active geophysical vessel, emitting low frequency, high energy seismic sounds, avoidance behaviors or other manifestations of disturbance are likely to be displayed by bowhead whales. The general approach of the experiments was to place an aircraft and scientific team in the field to locate the whales, and observe and measure whale behavior, waterborne noise, and environmental variables while controlling, via radio communication, the operation of the vessel selected for each of the experiments. The findings of these experiments are presented here in detail and a list of references is provided.

whales / pollution, noise / Continental Shelf, Alaska / environmental impact / Beaufort Sea, Alaskan / OCS / seismic exploration

A 235 "Observations on the Behavior of the Bowhead Whale (*balaena mysticetus*), in the presence of an operating seismic exploration vessel in the Alaskan Beaufort Sea (preliminary)."
Donald Ljungblad, Steven Swartz and Bernd Wursig.
In PROCEEDINGS OF THE WORKSHOP ON EFFECTS OF EXPLOSIVES USE IN THE MARINE ENVIRONMENT. JANUARY 29 TO 31, 1985, HALIFAX.
edited by G.D. Greene, F.R. Engelhardt and R.J. Paterson.
Canada Oil and Gas Lands Administration (COGLA). Environmental Protection Branch. Technical Report No. 5.
s.l. : Canada Oil and Gas Lands Administration, 1985. pp. 234-245.

622.17 Wor

This paper documents observations on the behavior of bowhead whales, with a view to identifying a "zone of influence" that likely exists around any source of low-frequency, high energy seismic sounds. The objective of the study is to quantify the distance at which bowhead whales display an avoidance or other reaction to an operating geophysical vessel. The study looks at surfacing, diving, respiration, rate and direction of movement, vocalizations and other behavioral patterns of bowheads while they are being directly approached by operating vessels. The scope of the study is fairly wide and this paper outlines several of the study's experiments.

whales / seismic exploration / environmental impact / Beaufort Sea, Alaskan / workshops / pollution, noise / COGLA

A 236 "Observations on the behavior of the bowhead whale, *Balaena mysticetus* on the summering grounds in the Canadian Beaufort Sea while in the presence of operating seismic exploration vessels."
W. John Richardson.
In PROCEEDINGS OF THE WORKSHOP ON EFFECTS OF EXPLOSIVES USE IN THE MARINE ENVIRONMENT. JANUARY 29 TO 31, 1985, HALIFAX.
edited by G.D. Greene, F.R. Engelhardt and R.J. Paterson.
Canada Oil and Gas Lands Administration (COGLA). Environmental Protection Branch. Technical Report No. 5.
s.l. : Canada Oil and Gas Lands Administration, 1985. pp. 248-251.

622.17 Wor

This is an abstract of a paper presented at the subject workshop. The paper deals with one aspect of an overall study of bowhead whale behavior in the Canadian Beaufort Sea - the short term behavioral reactions of bowheads to seismic exploration. (The overall study relates to the reactions of summering bowheads to offshore hydrocarbon exploration in the Beaufort Sea.)

whales / seismic exploration / Beaufort Sea / environmental impact / pollution, noise / workshops / COGLA

A 237 PEARY CARIBOU AND MUSKOXEN AND PANARCTIC'S SEISMIC OPERATIONS ON BATHURST ISLAND, N.W.T. 1974.
F.F. Slaney & Company Limited.
Vancouver, British Columbia : Panarctic Oils Limited, 1975.
various pag.

333.959 Sla

Panarctic Oils Limited has conducted winter seismic exploration programs on Bathurst Island since 1973. This report documents a study conducted on the interaction of these winter seismic activities with Peary caribou and muskoxen. The object of the study is to identify specific environmental concerns. The physical, biological and demographic characteristics of the area are described and information on populations and herd units is given in some detail. Numerous tables present the results of the observations; maps and photographs are included and there is a list of references cited.

Panarctic Oils / seismic exploration / Bathurst Island, N.W.T. / caribou / muskoxen / environmental impact / biology / demography / pollution, noise

A 238 POLAR BEAR: LIFE HISTORY AND KNOWN DISTRIBUTION OF POLAR BEAR IN THE NORTHWEST TERRITORIES.
D.R. Urquhart and R.E. Schweinsburg.
[Yellowknife, Northwest Territories] : Northwest Territories. Renewable Resources, 1984. 70 pp.

599.744 46 Urq

In this illustrated book, the taxonomy, behaviour, food habits, habitats, distribution, abundance, reproduction and mortality rates of polar bears in the Northwest Territories are examined. The distribution is divided into eight zones and for each zone the authors review population status, utilization by native peoples, the effects of industrial activities and problems related to such matters as harvest quotas, sport hunting and jurisdictional conflicts between some provinces and the Northwest Territories. The authors also discuss the history and background in terms of conservation and management of the polar bear population. A glossary is included and there is a list of literature cited.

taxonomy / wildlife habitats / aquatic habitats / bears, polar / Northwest Territories / hunting / native harvest / native peoples

A 239 POPULATION BIOLOGY OF THE BOWHEAD (BALAENA MYSTICETUS) AND BELUGA (DELPHINAPTERUS LEUCAS) WHALE IN THE BERING, CHUKCHI AND BEAUFORT SEAS [UNPUBLISHED MANUSCRIPT].
Howard W. Braham and Bruce D. Krogman.
U.S. Department of Commerce. Northwest and Alaska Fisheries Center Processed Report.
Seattle, Washington : U.S. Department of Commerce. National Oceanic and Atmosphere Administration, 1977. 29 pp.

599.51 Bra

This unpublished report summarizes bowhead and beluga whale distribution and abundance, using data collected in 1976 and from literature searched by the authors. Aerial and ice camp surveys, conducted simultaneously in an effort to delineate migratory patterns in the spring, are reported here. The research, which was conducted in the Beaufort, Bering and Chukchi Seas, represents the first year of activity in this subject under the Outer Continental Shelf Environmental Assessment Program (OCSEAP). Maps, graphs and photographs are included and there is a list of references cited.

whales / Beaufort Sea / Bering Sea / Chukchi Sea / OCS / OCSEAP

A 240 THE POTENTIAL EFFECTS OF INCREASED INDUSTRIAL ACTIVITY ON POLAR BEARS IN THE BEAUFORT SEA.
Paul Latour.
[Yellowknife, Northwest Territories] : Government of the Northwest Territories, 1983. 22 pp.

333.823 15 Lat

This submission to the Beaufort Sea Environmental Assessment Panel (BSEAP) discusses the effects of hydrocarbon exploration, production and transportation on the polar bears which occupy the offshore Beaufort Sea (the region extending from the Alaska-Yukon-Northwest Territories mainland to the west coast of Banks Island eastward to include Amundsen Gulf). The author examines the harvest and economic importance of polar bears to people in the region, and then identifies the various aspects of industrial development which may have a detrimental effect on the life and habitat of polar bears. A list of references is provided.

Beaufort Sea / BSEAP / environmental assessment / exploration / operations / transportation / oil spills / pollution, oil / bears, polar / Alaska / Yukon Territory / Northwest Territories / Banks Island, N.W.T. / Amundsen Gulf, N.W.T. / aquatic habitats / socio-economic aspects / native harvest / toxicity

A 241 SEALS AND SEALING IN CANADA'S NORTHERN AND ARCTIC REGIONS.
R.E.A. Stewart et al.
Canada. Department of Fisheries and Oceans. Canadian Technical Report of Fisheries and Aquatic Sciences No. 1463.
Winnipeg, Manitoba : Canada. Department of Fisheries and Oceans. Western Region, 1986. 31 pp.

639.29 Ste

Sealing in Canada has been a much publicized topic over the last decade, with attention primarily focused on the east coast seal hunt, and not on the northern and Arctic harvest. In contrast to this trend, the authors of this report outline the federal government's mandate with respect to conservation and management of pinnipeds in northern and Arctic regions and present information on seal harvest statistics for the Northwest Territories, northern Quebec and northern Labrador. Information on commercial sealing, past and present, in Canada's northern and Arctic regions is collated in this volume and the nutritional and cultural aspects of seals and sealing are discussed. A list of references is provided.

seals / hunting / Arctic / government / regulations / native harvest / Northwest Territories / Quebec, P.Q. / Labrador / history / nutrition / socio-economic aspects

A 242 STATUS OF BOWHEAD WHALES, BOWHEAD RESEARCH, AND ALASKA ESKIMO WHALING.
Arctic Environmental Information Center.
s.l. : University of Alaska, 1979. 1 microfiche.

MF AEIDC

This report discusses the issues involved in the bowhead whale debate as it affects communities in rural Alaska that depend on whaling. Northern Alaska Eskimos remain dependent on bowhead whale hunting for their physical and cultural survival. The issues of whale quotas, who has jurisdiction over aboriginal whaling and the effects of oil and gas industrial activity on bowhead whales are addressed. The report summarizes the status of knowledge of the bowhead whale, important data gaps and future research planned to protect the whale.

Alaska / native peoples / whales / hunting / socio-economic aspects / hydrocarbon production / Bering Sea / Arctic Ocean / AEIDC

A 243 A STUDY OF GRIZZLY BEARS ON THE BARREN GROUNDS OF TUKTOYAKTUK PENINSULA AND RICHARDS ISLAND, NORTHWEST TERRITORIES, 1974 TO 1978.
J.A. Nagy et al.
s.l. : Canadian Wildlife Service, 1983. 136 pp.

599.744 46 Nag

This study was carried out in response to concerns about management of barren-ground grizzly bears in light of hydrocarbon exploration, and in view of changes in the native harvest emphasis to that of hunting grizzly bears increasingly for the revenue from the sale of hides rather than for traditional subsistence reasons. The capture and marking, physical characteristics, food habits and population dynamics of the bears are described as is the telemetry involved in tracking them for the purposes of this study. The results of the monitoring studies are presented and discussed in some detail, including comments on grizzly-human relationships in the Mackenzie Delta Region. References are provided.

bears, grizzly / Tuktoyaktuk Peninsula, N.W.T. / Richards Island, N.W.T. / environmental monitoring / native harvest / nutrition / telemetering / Mackenzie Delta, N.W.T. / socio-economic aspects

A 244 STUDYING AND MANAGING ARCTIC SEALS AND WHALES.
M. Breton, T.G. Smith and B. Kemp.
Quebec, Quebec : Canada. Department of Fisheries and Oceans, 1984. 50 pp.

PAM 1984-95

The Inuit of Northern Quebec continue to rely on marine mammals, which are critically important for the food supply and play a vital role in the cultural identity. In the past, Inuit were not directly involved with the management of wildlife resources. This situation is changing as it is recognized that cooperation between southern researchers and the Inuit is essential for the conservation of marine mammals, so that there will always be sufficient resources to meet the immediate and future needs of the Inuit. This brochure, which is illustrated in colour, introduces ideas and concerns about marine mammals shared by both the Inuit and scientists, as well as describing the life cycles of mammals and the relationship between them and the Inuit people.

Inuit / Quebec, P.Q. / seals / whales / native harvest / native peoples / socio-economic aspects / hunting / fishing / biology, aquatic / mammals, marine

A 245 WATER COLOUR AND TEMPERATURE IN THE SOUTHERN BEAUFORT SEA: REMOTE SENSING IN SUPPORT OF ECOLOGICAL STUDIES OF THE BOWHEAD WHALE.
G.A. Borstad.
Canada. Department of Fisheries and Oceans. Canadian Technical Report of Fisheries and Aquatic Sciences No. 1350.
Winnipeg, Manitoba : Canada. Department of Fisheries and Oceans. Western Region, 1985. 68 pp.

599.510 45 Bor

This report presents the results of comparisons made of the geographic distribution of bowhead whales in the southern Beaufort Sea and coincident observations of water colour, chlorophyll afluorescence and/or temperature. The observations, which were made during August and September of 1980-1983, show that important congregations of bowheads tend to occur in the vicinity of oceanographic phenomena manifesting themselves as surface temperature or turbidity fronts and anomalies.

whales / Beaufort Sea / biochemistry / remote sensing / water temperature / water colour / currents / tidal currents / DFO / zooplankton

A 246 WHITE WHALE - OFFSHORE EXPLORATION ACOUSTIC STUDY.
John Ford.
Beaufort EIS Reference Works 1982.
Vancouver, British Columbia : F.F. Slaney & Company Limited, 1977. various pag.

639.979 5 For

Each summer, large numbers of white whales migrate to the Mackenzie River estuary, where they appear to have their calves and are hunted by native peoples from Aklavik, Inuvik and Tuktoyaktuk. The suspected calving areas are probably very important to the species, and the whale hunt and resulting whale products play a significant role in the local culture and economy. Possible adverse effects from hydrocarbon exploration have caused concern and, in response to this concern, Imperial Oil Limited commissioned this study. Sound produced by boats, barges and other equipment are identified as a major probable source of disturbance and this report studies these sounds and their relationship to white whales. A list of references is provided and there is also a glossary.

Mackenzie River estuary, N.W.T. / whales / EIS / environmental impact / Imperial Oil / Beaufort Sea / exploration / pollution, noise / Aklavik, N.W.T. / Inuvik, N.W.T. / Tuktoyaktuk, N.W.T. / hunting / socio-economic aspects

A 247 WHITE WHALE USE OF THE SOUTHEASTERN BEAUFORT SEA, JULY-SEPTEMBER 1984.
P. Norton and L.A. Harwood.
Canada. Department of Fisheries and Oceans. Canadian Technical Report of Fisheries and Aquatic Sciences No. 1401.
Winnipeg, Manitoba : Canada. Western Region, Department of Fisheries and Oceans, 1985. 46 pp.

599.53 Nor

This report presents data collected on white whales during six systematic aerial surveys of the southeastern Beaufort Sea. The study area is defined, the method of survey described and the results presented in depth. Included in the results are details of white whale group size, estimate of population size and sightings near offshore oil and gas industry activities. A list of references is provided and the report contains maps, graphs and tables.

whales / Beaufort Sea / environmental impact / ice, sea / drilling, offshore / DFO

OIL POLLUTION

A 248 ANALYSIS OF PROPONENTS' ESTIMATE OF THE CHANCE OF OIL SPILLS RESULTING FROM OIL PRODUCTION IN THE BEAUFORT SEA. PART 2 - PIPELINE VS. TANKER TRANSPORTATION: AMENDED.
Canada. Environment Canada. Computing and Applied Statistics Directorate.
Ottawa, Ontario : Computing and Applied Statistics Directorate, 1983. 33 pp.

628.168 33 CASD

This report is the second of a two part analysis and interpretation of the proponents' (Dome/Esso/Gulf) report to the [Beaufort Sea Environmental Assessment] Panel (BSEAP) entitled "oil spill risk assessment". The first part of the analysis report considered production and transportation scenarios and did not question the proponents' conventional tanker data base. In this second part, the chance of various size oil spills associated with pipeline transportation are considered and compared with the chance of various size oil spills associated with tanker transportation. In addition, some of the data base and model assumptions made by the proponents are questioned and alternative estimates of risk are made using plausible alternatives to the proponents' data base assumptions.

Dome / Esso / Gulf / BSEAP / oil spills / pollution, oil / environmental assessment / tankers / pipelines / transportation / transportation, marine / risk analysis

A 249 "Arctic Spill Response Improvements: A 1985 Review of Arctic Research and Development."
Sharon O. Hillman.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA, FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985. pp. 411-414.

628.168 33 Osc

Research and development has taken place in the Alaskan Beaufort Sea to enhance the response capabilities of the oil industry in the event of oil spills. Recent additions have been made to response techniques for oil spill cleanup during all seasons, including broken ice. This paper includes a summary of major research, reviews the technology gaps in Arctic response capabilities and highlights research and development areas which would benefit from further efforts to improve overall spill response.

conferences / Alaska / Beaufort Sea, Alaskan / oil spills / oil spill countermeasures / ice, sea / technology / pollution, oil

A 250 ASSESSMENT OF FRESHWATER IMPACTS FROM THE NORMAN WELLS OILFIELD DEVELOPMENT.
E.V.S. Consultants Ltd.
Vancouver, British Columbia : E.V.S. Consultants Ltd., 1985. 3 v.

333.956 1 EVS

This Northern Oil and Gas Action Program (NOGAP) study was prepared for the Department of the Environment (DOE). Part I of this extensive report presents: 1) the methodology and results of an analytical and field program conducted to establish essential chemical data on the effluent, cooling water, and crude oil at Esso Resources Ltd.'s Norman Wells site; 2) a review of literature on the fate and effects of oil and refinery effluents, including probable environmental impacts on the aquatic ecosystem; and 3) a design for a proposed research program identifying research needs and priorities to examine the fate and effect of hydrocarbon constituents most likely to have a deleterious impact on the Mackenzie River ecosystem. Part II of the report consists of one volume which documents field and laboratory tests relative to the study, and one volume containing appendices of supporting data (tables, questionnaires, field test data).

NOGAP / DOE / Esso / Norman Wells, N.W.T. / pollution, oil / pollution, industrial / waste disposal / Mackenzie River / ecosystems, aquatic / fish

A 251 "The Baffin Island Oil Spill (BIOS) Project: A Summary."
Gary A. Sergy.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA, FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985.
pp. 571-575.

628.168 33 Osc

After four years of multidisciplinary experimental investigations in the Canadian Arctic, the Baffin Island Oil Spill (BIOS) Project successfully completed studies which address oil spill fate, effects and countermeasures. This paper discusses selective findings and conclusions of the BIOS project. In particular, the findings are relevant to decisions relating to the nearshore use of chemical dispersants and the cleanup of oiled shorelines.

conferences / Arctic / BIOS / oil spills / oil spill countermeasures / dispersants / environmental impact / Baffin Island, N.W.T. / benthos / biodegradability

A 252 BAFFIN ISLAND OIL SPILL PROJECT. WORKING REPORT SERIES 83-7: TOXICOLOGY.
Baffin Island Oil Spill Project.
Baffin Island Oil Spill Project. Working Report Series 83-7.
Ottawa, Ontario : Canada. Department of the Environment, 1984.
various pag.

628.168 33 BIOS 83-7

This publication contains two study reports on research into the effects of hydrocarbon exposure on selected Arctic benthic invertebrates. Both research studies were conducted under the auspices of the Baffin Island Oil Spill (BIOS) project - a multidisciplinary program of research on Arctic marine oil spill effects and countermeasures.

BIOS / benthic invertebrates / toxicology / Baffin Island, N.W.T. / pollution, oil / oil spills / ecology, marine / biology, aquatic / environmental impact

A 253 BEAUFORT ENVIRONMENTAL MONITORING PROJECT 1983-1984.
LGL Limited, ESL Environmental Sciences Limited, ESSA Limited.
Canada. Department of Indian Affairs and Northern Development. Environmental Studies No. 34.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1985. 292 pp.

333.823 1 LGL

Prepared under contract for the Arctic Land Use Research Program, Department of Indian Affairs and Northern Development (DIAND), this report is the results of concerns that hydrocarbon development activities in the Beaufort Sea may result in adverse environmental impacts. The Beaufort Environmental Monitoring Project, initiated by DIAND and the Department of the Environment (DOE) because of these concerns, has the stated objective of providing DIAND and DOE with a technical basis for design, operation and evaluation of an environmental research and monitoring program to accompany phased hydrocarbon development in the Beaufort Sea. This report is the outcome of a succession of technical meetings, and it delineates a series of impact hypotheses relative to environmental impacts.

environmental monitoring / Beaufort Environmental Monitoring Project / DIAND / DOE / hydrocarbon production / Beaufort Sea / mammals / mammals, marine / pollution, oil / transportation, marine / drilling, offshore / birds / fish / ducks / government

A 254 "Beaufort Sea Ice Motions."
Robert S. Pritchard.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 95-113.

551.468 7 Ala

Motions of the Beaufort Sea ice cover are of general scientific interest and of engineering importance because of ongoing petroleum development along the North Slope of Alaska. This paper discusses the question of where an oil spill in ice would be transported and regulatory agency and engineering requirements on the probability that oiled ice will be transported to a specific location. The author describes a free-drift model which is used to simulate ice motions in the Beaufort Sea and then compares these simulated motions with observed motions. This paper includes numerous charts and graphs and a list of references.

Beaufort Sea / ice / North Slope, Alaska / oil spills / pollution, oil / ice, sea / wind / currents / Alaska

A 255 "Behavioral and Physiological Effects of Hydrocarbon Exposure on Selected Arctic Invertebrates."
C. Mageau and R. Engelhardt.
In BAFFIN ISLAND OIL SPILL PROJECT. WORKING REPORT 83-8: TOXICOLOGY.
Ottawa, Ontario : Canada. Department of the Environment, 1984.
67 pp.

628.168 33 BIOS 83-7

Part of the Baffin Island Oil Spill (BIOS) project, this article reports on a series of experiments carried out to define the behavioral responses and the dynamics of hydrocarbon uptake and clearance in three species of benthic invertebrates - the sea urchin, the Greenland cockle and the soft-shelled clam. The experiments involved exposure to dispersed crude oil in a flow-through sea water system. The author interprets the data collected in the context of individual survival and in relation to previous BIOS experimental spill results. A list of references is included.

BIOS / benthic invertebrates / pollution, oil / Baffin Island, N.W.T. / ecology, marine / oil spills / biology, aquatic / toxicology / environmental impact

A 256 BIBLIOGRAPHY ON THE FATE AND EFFECTS OF ARCTIC MARINE OIL POLLUTION.
Stuart C. Young.
Environmental Studies Revolving Funds Report No. 026.
Ottawa, Ontario : Arctic Institute of North America, 1986. 212 pp.

016.628 You

A joint Environmental Studies Revolving Funds (ESRF)/Arctic Science and Technology Information System (ASTIS) project, this bibliography contains 748 annotated citations. The subject scope covers the physical, chemical and biological fate and biological effects of petroleum and its hydrocarbon constituents. The literature types included are research reports, monographs, scientific journals, conference proceedings, theses and government, corporate and institute reports. There are four indexes - subject, geographic, title and serial.

bibliographies & indices / environmental impact / pollution, oil / ESRF / ASTIS / biology, aquatic / aquatic habitats / oil spills / biodegradability / ecosystems, aquatic / mammals, marine / fish / seabirds / ice, sea

A 257 "A Biologist Looks at Oil in the Sea."
K.H. Mann.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 67-73.

333.823 05 Arc 1978

In this paper, the author presents a biologist's view of the effects of oil pollution on the marine environment, including a section which offers speculation on oil spills in the Arctic. Three biological principles are put forth: plant and animal populations have built-in variability; the nearshore marine environment is both the most productive and the most vulnerable; and the normal reaction of a community to stress is the reduction in the number of species present. The author expands on these principles and concludes by offering an assessment of the state of oil pollution in our seas.

pollution, oil / environmental impact / ecosystems, aquatic / biology, aquatic / phytoplankton / Arctic / aquatic habitats / seas / workshops / APOA / CPA

A 258 "The BIOS Project-Frontier Oil Spill Countermeasures Research."
Peter J. Blackall and Gary A. Sergy.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981. pp. 167-172.

628.168 33 Osc 1981

This paper outlines the background and scope of the four-year Baffin Island Oil Spill (BIOS) project which was formally initiated in March 1980. The authors present an overview of the first season's results, highlighting the preliminary oil discharges which took place in August of 1980 and which marked the start of studies on the long-term fate of oil on Arctic beaches. The oceanographic, meteorological and geomorphological studies are touched on, as are the chemical and biological programs which form part of the project. The paper concludes with a discussion on the ramifications of the results of the first season's studies on the design of the oil spill schedule for 1981. The BIOS project's main objectives are to determine if the use of dispersants in the Arctic nearshore will reduce or increase the environmental effects of spilled oil, and to determine the physical and chemical fate of chemically treated oil on the Arctic nearshore.

conferences / BIOS / Baffin Island, N.W.T. / oil spills / oil spill research / Arctic / oceanography / meteorology / geomorphology / toxicology / sedimentology / benthos / benthic invertebrates / environmental impact / dispersants / pollution, oil

A 259 CHEMICAL ANALYSIS OF SAMPLES FROM EXPERIMENTAL NORTHERN TERRESTRIAL OIL SPILLS.
Donald Mackay, Diane McCurdy, Wan Ying Shiu.
Canada. Department of Indian Affairs and Northern Development. Environmental Studies No. 32.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 40 pp.

628.168 33 Mac

This report documents a study in which samples of oil-contaminated soil from Norman Wells and Tuktoyaktuk were collected and analysed some seven and eight years after experimental oil spills had taken place. The analytical methods, results and findings are described and some implications regarding site monitoring and future research directions are discussed. Tables and graphs are included and there is a list of references.

Norman Wells, N.W.T. / Tuktoyaktuk, N.W.T. / pollution, oil / environmental monitoring / environmental impact / biodegradability / soils / vegetation / taiga / tundra / DIAND

A 260 CHEMISTRY 1: FIELD SAMPLING AND MEASUREMENTS - 1983 STUDY RESULTS.
B. Humphrey.
Baffin Island Oil Spill Project. Working Report Series 83-1.
Ottawa, Ontario : Canada. Environmental Protection Service, 1984.
64 pp.

628.168 33 BIOS 83-1

The sampling for the Baffin Island Oil Spill (BIOS) project chemistry component is described in this report. The analytical method used to determine total hydrocarbon content and the results of those analyses are presented. Samples taken during the 1983 study are listed with the results of corresponding analyses from 1980 to 1982. The statistical validity of the sample protocol is examined. Much of the information is presented in tabular format and a short list of references is provided.

BIOS / Baffin Island, N.W.T. / pollution, oil / Arctic / oil spill research / environmental impact / ecology, marine / microbiology / benthic invertebrates / crude oil properties / sedimentation

A 261 CHEMISTRY 2: ANALYTICAL BIOGEOCHEMISTRY - 1983 STUDY RESULTS.
P.D. Boehm et al.
Baffin Island Oil Spill Project. Working Report Series 83-2.
Ottawa, Ontario : Canada. Environmental Protection Service, 1984.
139 pp.

628.168 33 BIOS 83-2

This volume presents the results of the fourth year of a continuing series of analytical chemical studies of oil fate and transport from the Baffin Island Oil Spill (BIOS) project. Two major tasks were involved in this fourth year study: 1) nearshore - examination of the concentrations of residual oil, its transport paths, fates and weathering; and 2) shoreline - chemical measurements of oiled shoreline to determine concentration and composition of residual oil. Many tables and graphs are used to present the study results and a list of references is provided.

BIOS / Baffin Island, N.W.T. / pollution, oil / Arctic / oil spill research / environmental impact / benthic invertebrates / vegetation / microbiology / ecology, marine / crude oil properties

A 262 COASTAL ENVIRONMENTS OF CANADA: THE IMPACT AND CLEANUP OF OIL SPILLS.
E.H. Owens.
Canada. Environmental Protection Service: Economic and Technical Review Report EPS-3-EC-77-13.
Ottawa, Ontario : Canada. Environmental Protection Service, 1977. 413 pp.

333.917 1 Owe

This document defines the major coastal environments of Canada (some 250,000 km. including the Great Lakes) and explains significant geological characteristics. The expected nature and behavior of oil spill occurrences and the distribution of oil residues in the littoral environment are discussed. Available cleanup techniques are examined in terms of their applicability and effectiveness. Guidelines for the implementation of the most suitable techniques in each coastal environment are presented. A bibliography provides references for more detailed information as well as listing sources cited in the text, and a glossary of terms is included.

pollution, oil / tidal currents / oil spills / oil spill countermeasures / environmental protection / oil spill research / seas / lakes / geomorphology / geology / wind / waves / ice / ice, sea / in situ burning / dispersants / sorbents / littoral zone

A 263 THE COASTAL MORPHOLOGY AND SEDIMENTOLOGY OF EASTERN LANCASTER SOUND AND NORTHEAST BAFFIN ISLAND: A STUDY OF SHORELINE SENSITIVITY TO A POTENTIAL OIL SPILL.
Peter McLaren and William B. Barrie.
Geological Survey of Canada Paper 83-24.
Ottawa, Ontario : Geological Survey of Canada, 1985. 32 pp.

557 GSC P83-24

In preparation for considerable hydrocarbon exploration and production activities in the Lancaster Sound and Baffin Bay regions, the Geological Survey of Canada (GSC) undertook this environmental coastal study. The potential of an oil spill arising from a blowout, tanker accident or other situation is examined briefly. The physical environments of the coasts of the subject regions are defined, coastal vulnerability and sensitivity are assessed and suggested protective measures and cleanup procedures are recommended. The intent of the report and accompanying maps is to provide. all pertinent information required to allow oil spill contingency planning to take place.

Baffin Island, N.W.T. / Lancaster Sound, N.W.T. / pollution, oil / oil spill countermeasures / blowouts / tankers / environmental protection / geomorphology / morphology / ice, sea / climatology / tidal currents / geology / sedimentology / GSC

A 264 "Combustibility and Incineration of Beaufort Crude/Seawater Emulsions."
D. Kretschmer and J. Odgers.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA, FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985. pp. 19-23.

628.168 33 Osc

This paper describes tests on the emulsification properties of two different Beaufort crudes. The test results show that emulsions with up to 50 percent water content have to be expected after an oil spill. In the tests, emulsions with this water content were burned in a simple combustor and the resulting flames were as clean as could be expected from any fuel. Since no problems were encountered while burning the emulsions, the authors suggest that a low pollution incineration device can be designed using previously established standard design criteria.

conferences / crude oil properties / Beaufort Sea / water-in-oil emulsions / oil spill countermeasures / pollution, oil / oil spill research / in situ burning

A 265 "The Comparative Fate of Chemically Dispersed and Untreated Oils in an Arctic Nearshore Environment."
P.D. Boehm.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 338-360.

628.168 33 ASTM

The distribution and environmental fate of petroleum hydrocarbons introduced into the nearshore environment of Baffin Island, N.W.T., in two controlled experimental discharges, are studied in this paper. Two scenarios are presented. 1) Untreated oil on the water surface, and 2) chemically dispersed oil discharged below the surface. Conclusions are drawn about the weathering of oil in both scenarios, transport of hydrocarbons into the water column, the sedimentation of oil and the uptake and depuration of untreated and chemically dispersed oil by selected benthic invertebrates. This study is part of the Baffin Island Oil Spill (BIOS) program.

dispersants / pollution, oil / benthic invertebrates / sedimentation / aquatic habitats / water quality / BIOS / Baffin Island, N.W.T. / oil spills / oil spill countermeasures / ecosystems, aquatic / biodegradability / environmental impact

A 266 CRUDE OIL IN COLD WATER. THE BEAUFORT SEA AND THE SEARCH FOR OIL.
Allen R. Milne and Richard H. Herlinveaux.
edited by R.J. Childerhose.
Beaufort Sea Project Overview Report.
Ottawa, Ontario : Beaufort Sea Project. Canada. Department of Fisheries and Oceans, n.d. 119 pp.

628.168 6 Mil

The Beaufort Sea Project is the name given to a group of studies designed to ensure that effective regional environmental assessments are conducted prior to major drilling programs being authorized. This report, which is one of a series, devotes much of its text to the oceanography of the Beaufort Sea and features topics such as sediments, storm surges, and sea ice. Diagrams show the possible spread of oil from a blowout for spring, summer and winter, predicting where the oil is most likely to appear. There are also discussions on the effects of oil and other industrial pollution on marine life, and oil spill countermeasures. A short history of the general exploration of the Canadian Arctic, which began in the sixteenth century, is included.

Beaufort Sea Project / Beaufort Sea / Continental Shelf, Canada / environmental impact / drilling, offshore / exploration / history / pollution, oil / oil spills / blowouts / pollution, industrial / ice, sea / oceanography / storms / tidal currents / oil spill countermeasures / ecology, marine / benthos / sedimentation / mammals, marine / fish

A 267 DOME OIL SPILL CONTINGENCY PLAN.
Dome Petroleum Limited.
Beaufort EIS Reference Works 1982.
s.l. : [Dome Petroleum Limited], 1981. various pag.

628.168 33 Dom

This third edition of Dome's oil spill contingency plan delineates techniques to be used in the event of oil spills in the Beaufort Sea. Various types of oil spill are classified (minor, intermediate, major) and the actions to be taken for each are detailed. Administrative responsibility is assigned and organization charts are included. Cleanup and restoration methods are outlined for shoreline as well as offshore situations. A list of definitions is provided.

Dome / oil spills / oil spill countermeasures / pollution, oil / Beaufort Sea / blowouts / oil detection systems / ice, sea / sorbents / fireproof booms / skimmers / in situ burning / dispersants / EIS / environmental impact

A 268 DOME PETROLEUM LIMITED ENVIRONMENTAL IMPACT STATEMENT OIL SPILL SCENARIO 4: TANKER COLLISION IN LANCASTER SOUND.
LGL Limited Environmental Research Associates.
Beaufort EIS Support Document 1982.
Toronto, Ontario : LGL Limited Environmental Research Associates, n.d. 50 pp.

628.168 33 LGL

Prepared for Dome Petroleum Limited, this report is one of a series of descriptions of the potential effects of oil spilled under specified circumstances in the Beaufort Sea and Northwest Passage. In this scenario (Dome's "oil spill scenario 4"), an oil carrying tanker is assumed to be involved in a collision in central Lancaster Sound. As a result of the hypothetical collision, 270,000 barrels of oil are spilled over a period of two days. It is further assumed, for the purposes of this scenario, that no cleanup, containment of dispersal of the spilled oil occurs. This report examines the fate of the spilled oil, and its effect on mammals, fish, birds and the aquatic ecosystem in the area.

Dome / EIS / environmental impact / tankers / Beaufort Sea / Lancaster Sound, N.W.T. / oil spills / pollution, oil / mammals, marine / seabirds / phytoplankton / zooplankton / benthos / fish / ecosystems, aquatic / shore birds / waterfowl / whales / seals / bears, polar

A 269 "Ecological Considerations for the Use of Dispersants in Oil Spill Response."
J. Lindstedt-Siva et al.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 363-377.

628.168 33 ASTM

This paper outlines recommendations for ecology-based guidelines which are being developed for oil spill dispersant use in marine and coastal environments. The recommendations consider dispersant use to protect habitats from the impact of oil spills, to mitigate impact and to clean habitats after a spill. There are summaries of five guidelines (for coral reefs, rocky shores, bird habitats, sea grasses and marine mammal habitats) and each one contains a description of the habitat type and the potential impact from oil spills as well as recommendations for dispersant use.

pollution, oil / oil spill countermeasures / dispersants / environmental impact / seals / vegetation / aquatic habitats / shore birds / seabirds / ecology, marine / birds / fish / conferences

A 270 "The Effects of Oil on Fish."
S.D. Rice.
In PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
edited by F.R. Engelhardt.
London, England : Elsevier Applied Science Publishers Ltd., 1985. pp. 157-182.

363.738 2 Pet

Nearly all the important commercial fisheries in the world are located over continental shelves, which are also the sites of offshore oil development and transportation. Thus, there is concern that oil pollution may harm fisheries through direct or indirect destruction of fish stocks. This paper reviews the effects of oil on fish. It is pointed out, however, that there have been few laboratory or field studies of Arctic fish so much of the information presented here has been extrapolated from studies of fish in warmer climates. The author discusses the toxicity of oil to fish, the sublethal effects of oil on fish and the effects of oil on fisheries. A list of references is included.

fish / Arctic / fisheries / pollution, oil / toxicity / Continental Shelf, Canada / socio-economic aspects / oil spills / environmental impact

A 271 "Effects of Petroleum on Marine Mammals."
F.R. Engelhardt.
In PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
London, England : Elsevier Applied Science Publishers Ltd., 1985. pp. 217-243.

363.738 2 Pet

The effects of petroleum on Arctic marine mammals is a topic which receives a large amount of lay and technical attention. This article reviews the toxicity response to oil shown by whales, seals, sea otters and polar bears and also assesses the significance of the effects in the context of the life habitats of these animals. The author supplements the text with tables and provides a list of references.

Arctic / pollution, oil / oil spills / whales / seals / sea otters / bears, polar / toxicity / environmental impact

A 272 EPOA MARINE OIL POLLUTION BASELINE STUDY.
E.L. Walker, M.E. Trethart, and D.L. Andrews.
EPOA Project #8.
Calgary, Alberta : Eastcoast Petroleum Operators' Association (EPOA), 1972. 2 microfiche.

MF EPOA 8-1

This report presents the recommendations of the Eastcoast Petroleum Operators' Association (EPOA) Marine Oil Pollution Baseline Study Committee. The committee was established to determine the research requirements necessary to enable the petroleum industry to operate offshore in a safe, efficient, manner with minimum disturbance to the environment. The report consists of recommendations and discussions based on information gathered during consultations with industry, government and the academic community, designed to define problem areas and determine how all interested parties can work together to solve pollution problems which are a threat to the environment. Eight appendices containing committee support documents are included.

EPOA / pollution, oil / drilling, offshore / government / environmental protection / hydrocarbon production / oil spill research / Sable Island, N.S. / mammals, marine / seabirds / ecosystems, aquatic

A 273 "Future Developments in Oil Spill Research and Development."
H. Hume.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 210-215.

333.823 05 Arc 1983

This paper outlines the oil and gas industry's needs for future oil spill research and development. The author points out the commonality of industry's and government's needs and suggests that these common interests may largely be pursued under the auspices of the Environmental Studies Revolving Funds (ESRF). The main areas of research perceived by the author to require emphasis in the near future are dispersants, subsea containment, mechanical containment, recovery of oil (in ice) and monitoring and surveillance. Present and future Canadian Offshore Oil Spill Research Association (COOSRA) research topics are listed in this paper.

workshops / COOSRA / oil spill research / subsea containment / dispersants / environmental monitoring / pollution, oil / ESRF / government / ice, sea / CPA / EPOA / APOA

A 274 THE IMPACT AND CLEANUP OF OIL SPILLS ON CANADIAN SHORELINES.
Canada. Environmental Protection Service.
Canada. Environmental Protection Service. Training Manual EPS 6-EC-78-1.
Ottawa, Ontario : Canada. Environmental Protection Service, 1978. 25 pp.

628.168 33 Can

In this manual, the coastal geomorphology of Canada's shorelines is discussed, in terms of basic shoreline types such as cliffs, beaches and marshes. The expected impact of oil spills and cleanup strategies for each of ten types of shoreline are presented. Photographs and diagrams supplement the text.

geomorphology / oil spills / oil spill countermeasures / littoral zone / beaches / erosion / pollution, oil / ice, sea

A 275 "Impact of Oil on Fisheries."
D.J. Scarratt.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 317-333.

333.823 05 Arc 1980

This paper examines environmental threats posed by oil to fisheries. It includes general problems related to direct toxicity, physiological and behavioral disruptions, incorporation into tissues and tainting, physiological changes to habitats, and incorporation into sediments with subsequent slow long-term release. A list of references is appended to this paper.

fisheries / pollution, oil / environmental impact / biology, aquatic / benthos / ecosystems, aquatic / aquatic habitats / toxicity / sedimentation / plankton / oil spills / drilling, offshore / fish / hydrocarbon production / workshops / APOA

A 276 "Innovative Response Techniques for Major River Systems."
Andrew R. Teal.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA, FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985. pp. 173-175.

628.168 33 Osc

Oil spill response in major river systems can be hampered both technically and logistically by river width, current speed, and limitations imposed by equipment and weather. Esso, in response to challenges presented by the Mackenzie River on the Northwest Territories, has developed response systems and techniques to deal with such concerns. The techniques, which include mid-channel response, anchoring, oil deflection and oil recovery from under thick ice, are described in this paper.

conferences / oil spills / oil spill countermeasures / pollution, oil / Mackenzie River / fireproof booms / aerial delivery / Esso / Norman Wells, N.W.T. / rivers / skimmers / currents / ice

A 277 "Interaction of Oil and Arctic Sea Ice.
Donald R. Thomas.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 441-460.

551.468 7 Ala

This paper summarizes relevant knowledge about the interactions between Arctic sea ice and oil. The author identifies the major factors in the interaction, given a large under-ice blowout in the Beaufort Sea during winter. For the purposes of this paper, the blowout is assumed to consist of the continuous release, over a minimum of several days, of large quantities of crude oil and many times that amount of gas. The expected phases and effects of such a blowout are detailed, including thermal effects, spreading phase and the effects of gas, currents and ice motion. Oil-ice interactions that will affect clean-up after the blowout are also discussed. A list of references is provided.

blowouts / oil spills / natural gas / ice, sea / Arctic / pollution, oil / Beaufort Sea / hydrology / oil spill research / Continental Shelf, Alaska

A 278 "Legal Liability in the Canadian Arctic Relating to Oil Spills and Blowouts."
D.E. Lewis.
In THE CANADIAN ARCTIC AND NORTHERN REGIONS AND OTHER SELECTED MATTERS OF CURRENT INTEREST TO THE OIL AND GAS INDUSTRY: PETROLEUM LAW SUPPLEMENT.
Maurice J. Sychuk.
Alberta Law Review: Special Issue, Vol X No. 3, 1972.
Edmonton, Alberta : University of Edmonton, Faculty of Law, 1972.
pp. 440-450.

343.077 2 ALB

This article discusses the pollution problems of the oil and gas industry in the Arctic with regard to liability for oil spills and blowouts. The author considers possible common law and statutory liability for personal injuries and property damage, caused by blowouts and oil spills, both onshore and offshore. The article concludes with a discussion of the special problems of forseeability of damage in the Arctic. Many cases are cited and relevant legislation is referenced.

pollution, oil / Arctic / legal aspects / legislation / blowouts / oil spills

A 279 MACROBENTHOS: STUDY RESULTS 1980-1983.
W.E. Cross et al.
Baffin Island Oil Spill Project. Working Report Series 80-3, 81-3, 82-3, 83-3.
Ottawa, Ontario : Canada. Department of the Environment, 1984.
4 vol.

628.168 33 BIOS

The objective of these macrobiological components of the Baffin Island Oil Spill (BIOS) project is to assess the effects of oil and dispersed oil on macrophytic algae, the relatively immobile benthic infauna and epibenthos in shallow Arctic waters. The methods employed in conducting the experiments are explained and the results are analysed in this very technical document. A list of references is included in each volume.

BIOS / biology, aquatic / algae / benthic fauna / benthos / oil spills / pollution, oil / Baffin Bay, N.W.T.

A 280 "A Mathematical Model for Predicting the Ecological Impact of Treated and Untreated Oil Spills."
B.K. Trudel.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 390-413.

628.168 33 ASTM

This paper describes an ecological impact model designed to estimate the impact of chemically treated and untreated oil spills on seabirds and fish. Impact is defined as the proportion of the animal population killed and the length of time required for that population to recover to its pre-spill condition. The findings suggest that, for some situations, chemically dispersed oil might have a greater area of effect and greater environmental impact than undispersed oil.

oil spill countermeasures / dispersants / oil spill research / conferences / seabirds / fish / ecology, marine / environmental impact

A 281 "North Aleutian Shelf Sea Otters and Their Vulnerability to Oil."
Robert L. Cimberg and Daniel P. Costa.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA, FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985. pp. 211-217.

628.168 33 Osc

The North Aleutian Shelf is a shallow region of the southeast Bering Sea that supports large populations of commercial fish and marine mammals. The sea otter population in the area has been studied generally since 1930 but more specifically recently in view of proposed oil development. This study provides an environmental baseline on sea otters in order to assess the impacts of proposed oil-related development. Emphasis is placed on the distribution of the otter and the environmental factors regulating the distribution patterns.

conferences / pollution, oil / sea otters / aquatic habitats / Bering Sea / North Aleutian Shelf / environmental impact / oil spills / northern energy development

A 282 "Observations of Scope for Growth, Aspartate Aminotransferase Activity and Glucose-6-Phosphate Dehydrogenase Activity in Mya Truncata and Serripes Groenlandicus Exposed to Various Concentrations of Chemically Dispersed Crude Oil."
E. Gilfillan and D. Vallas.
In BAFFIN ISLAND OIL SPILL PROJECT. WORKING REPORT 83-7: TOXICOLOGY.
Ottawa, Ontario : Canada. Department of the Environment, 1984.
55 pp.

628.168 33 BIOS 83-7

This document reports that observations made during the 1981 field season of the Baffin Island Oil Spill (BIOS) project indicate that both the mya truncata (soft-shelled clam) and the serripes groenlandicus (Greenland cockle) accumulate high levels of petroleum hydrocarbons in oil spill situations. The authors discuss behavioral differences between the two species and the extent to which the accumulated hydrocarbons affect their physiological well-being. A number of charts illustrate research findings and a short bibliography is included.

BIOS / benthic invertebrates / pollution, oil / oil spills / ecology, marine / Baffin Island, N.W.T. / biology, aquatic / toxicology / environmental impact

A 283 OFFSHORE DRILLING FOR OIL IN THE BEAUFORT SEA: A PRELIMINARY ENVIRONMENTAL ASSESSMENT.
A.R. Milne and B.D. Smiley.
Beaufort Sea Project. Technical Report No. 39.
Victoria, British Columbia : Canada. Department of the Environment, 1976. 43 pp.

333.951 Mil

This environmental assessment report assumes a hypothetical worst-case oil well blowout scenario in the Beaufort Sea. The nature of the transport and fate of oil is examined and conclusions are drawn as to the impact of the oil on the environment, including native harvest, seabirds, marine mammals and other marine organisms. The geographical setting of the Beaufort Sea is described, ice features are examined in some detail, and oceanographic considerations are addressed.

environmental assessment / blowouts / Beaufort Sea / Beaufort Sea Project / oil spills / pollution, oil / native peoples / native harvest / seabirds / whales / bears, polar / seals / waterfowl / fish / fishing / hunting / drilling, offshore / geography / oceanography / wind / waves / ice, sea / zooplankton / benthos

A 284 "Oil and Arctic Marine Birds: An Assessment of Risk."
F.A. Leighton, R.G. Butler and D.B. Peakall.
In PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
edited by F.R. Engelhardt.
London, England : Elsevier Applied Science Publishers Ltd., 1985.
pp. 183-215.

363.738 2 Pet

The authors of this article attempt to assess the risk to marine birds posed by Arctic petroleum development. The actual and projected geography and magnitude of Arctic petroleum extraction and transportation, and the biology and seasonal geography of populations of birds at risk are discussed. The toxicity of oil to birds is reviewed and the interrelationship of all these factors is considered in an overall assessment of risk. Maps and tables are used to supplement the text and a list of references is provided.

seabirds / biology, aquatic / pollution, oil / oil spills / environmental impact / Arctic / exploration / operations / toxicity / gulls / terns

A 285 OIL AND DISPERSANTS IN CANADIAN SEAS - RESEARCH APPRAISAL AND RECOMMENDATIONS.
edited by J.B. Sprague, J.H. Vandermeulen and P.G. Wells.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EC-82-2.
Ottawa, Ontario : Canada. Environmental Protection Service, 1982.
185 pp.

628.168 33 Spr

This report evaluates knowledge of the fate and effects of oil spilled at sea and the implications of using dispersants, with special reference to Canadian marine environments. Individual scientists contributing to this volume give perspectives on the Canadian oil industry, fate and behavior of oil in the sea, microorganisms and degradation of oil, dispersants, and the effects of oil and dispersants on phytoplankton, zooplankton, fish, birds, marine mammals and ecosystems. Recommendations for further research and strategies for minimizing the effects of oil spills are included. Almost 600 references are cited.

oil spills / oil spill countermeasures / pollution, oil / dispersants / phytoplankton / zooplankton / fish / birds / mammals, marine / ecosystems, aquatic / water-in-oil emulsions / biodegradability / toxicity / benthos

A 286 OIL IN THE SEA; INPUTS, FATES AND EFFECTS.
Steering Committee for the Petroleum in the Marine Environment Update.
Washington, Dist. of Columbia : National Academy Press, 1985.
601 pp.

574.522 2 Oil

This study of petroleum pollution in the world's oceans recognizes two potentially opposing aspects of the topic: on one hand the pollution arising from activities undertaken to meet energy needs - extraction, transportation and use of petroleum - and on the other hand the strong desire to preserve living marine resources. After discussing the chemical composition of petroleum hydrocarbon sources this book addresses the introduction of oil to the marine environment, including natural sources, offshore oil production, marine transportation and other industrial causes. Chemical and biological methods for assessing the effects of oil spills on the marine environment are reviewed. There is an examination of the actual effects of oil pollution on marine resources and the biological processes of marine life. Each chapter of this book includes a list of references and an index is provided. Selected major oil spill case histories are presented in an appendix.

pollution, oil / ecosystems, aquatic / crude oil properties / hydrocarbon production / oil spills / environmental impact / fish / mammals, marine / seabirds / toxicity / phytoplankton / zooplankton / benthic invertebrates / plankton / algae / biodegradability / benthos

A 287 "Oil Migration and Modification Processes in Solid Ice."
William G. Nelson and Alan A. Allen.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981.
pp. 191-198.

628.168 33 Osc 1981

The migration of Prudhoe Bay crude oil and diesel fuel through first year sea ice, and the effect of entrained oil on sea ice growth rates are examined in this paper. Physical and chemical changes within the oils are examined during and after the entrainment process and the results of monitoring sea ice growth under oil are examined here. The laboratory test results include oil migration as a function of ice temperature and the effect of various oil layer thicknesses upon the ice growth rates. Photographs and tables are provided and there is a short list of references.

conferences / Prudhoe Bay, Alaska / ice, sea / oil spills / ice / pollution, oil

A 288 THE OIL SINKING ABILITY OF MACKENZIE RIVER BORNE SUSPENDED SEDIMENTS IN THE BEAUFORT SEA: A LITERATURE REVIEW.
F.F. Slaney & Company Limited.
Beaufort EIS Reference Works 1982.
Vancouver, British Columbia : F.F. Slaney & Company Limited, 1978.
78 pp.

628.168 33 Sla

This report was prepared for Canmar, with the primary objective of establishing whether there is sufficient evidence to suggest that suspended sediments carried by the Mackenzie River and discharged in the form of a plume in the Beaufort Sea could contribute to the disposal of an oil slick originating from an oil well blowout. There are two annotated bibliographies included; one contains literature describing sediments of the Beaufort Sea and Mackenzie River and the other, literature describing oil-sediment interactions and the fate of sedimented oil. There is a discussion of the establishment of a formula relationship between the volume of suspended sediments and their ability to sink oil as well as recommendations for future laboratory and field studies to supplement the content of the subject report.

Canmar / EIS / environmental impact / bibliographies & indices / Beaufort Sea / Mackenzie River / pollution, oil / blowouts / sedimentology / oil spill research / oil spills

A 289 AN OIL SPILL BIBLIOGRAPHY: MARCH 1975 TO DECEMBER 1976.
M.F. Fingas and C.W. Ross.
Canada. Environmental Protection Service: Economic and Technical Review Report EPS-3-EC-77-10.
Ottawa, Ontario : Canada. Environmental Protection Service, 1977.
112 pp.

016.628 Fin

This bibliography provides a list of literature relating to the field of oil spills. The contents are divided into two parts: the first section categorizes references under the main subject of each item; the second section is an alphabetical listing by author surname. In addition to the references on oil spills, a sub-section entitled "Arctic Background" is provided in view of the interest expressed in, and current research on, Arctic oil spill countermeasures.

bibliographies & indices / oil spills / oil spill countermeasures / Arctic / pollution, oil / risk analysis / biodegradability / dispersants / environmental impact / biology, aquatic / oil detection systems

A 290 OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981.
742 pp.

628.168 33 Osc 1981

The proceedings of the 1981 Oil Spill Conference included in this volume present state-of-the-art information on oil spill equipment, regulations and cleanup techniques, as well as the impacts resulting from social and legal forces. Most of the papers in the volume are illustrated and each provides a list of references. A list of registrants is also included.

conferences / oil spills / oil spill research / oil spill countermeasures / technology / environmental impact / government / regulations / legislation / legal aspects / socio-economic impacts / Arctic / Beaufort Sea

A 291 OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA, FEBRUARY 25-28, 1985.
American Petroleum Institute; U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985.
651 pp.

628.168 33 Osc

This volume contains the texts of papers presented at the oil spill conference, sponsored by the American Petroleum Institute, in Washington, D.C. Each paper is prefaced by an abstract and includes a list of references. Most papers are illustrated and an author index and a subject index are provided.

ice, sea / tankers / vegetation / conferences / oil spills / oil spill countermeasures / technology / environmental impact / pollution, oil / dispersants / in situ burning / skimmers / sorbents / climatology / legal aspects / remote sensing / oil detection systems / fireproof booms / rivers / benthic invertebrates / ecology, marine / mammals / mammals, marine / BIOS / birds / fish / ecosystems, aquatic

A 292 "Oil Spill Countermeasures in Landfast Sea Ice."
Alan A. Allen and William G. Nelson.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981. pp. 297-304.

628.168 33 Osc 1981

The behavior of crude oil and diesel oil in solid landfast sea ice has been examined previously under a variety of conditions. Controlled oil releases have shown that oil spills in the landfast ice zone tend to remain highly immobilized and achieve relatively thick concentrations. Such spills encounter natural conditions that encourage accumulation of the oil at or near the ice surface, limit the areal extent of the oil and help preserve certain physical and chemical characteristics that facilitate its control. This paper presents a summary of these phenomena and reveals operational considerations for the development of specific Arctic countermeasure techniques. These techniques are presented here, with emphasis on the use of natural materials and conditions for their implementation. The paper is illustrated and a list of references is provided.

conferences / oil spills / ice, sea / oil spill countermeasures / Arctic / fireproof booms / sorbents / snow / in situ burning / skimmers / environmental impact / ice

A 293 "Oil Spill Countermeasures in Offshore Production."
S.L. Ross.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 372-389.

333.823 05 Arc 1980

Before concentrating on oil spill countermeasures in the Arctic, this speaker reviews and lists the 36 largest oil spills that have occurred in the world - from 1942 up to March 1978 - and notes that Canada's name does not appear on that list. The public and the media's reaction to oil spills is discussed. The need for preparedness, research and development, and cooperation between all agencies, authorities and interested parties is considered vital in ensuring fast and effective reaction to oil spill situations. The oil spill countermeasures required in various regions because of environmental differences are examined. A graph showing the environmental and economic impacts of twelve large oil spills is included.

oil spill countermeasures / pollution, oil / Arctic / Beaufort Sea / oil spills / blowouts / tankers / pipelines / environmental impact / oil spill research / socio-economic impacts / workshops / APOA

A 294 OIL SPILL RISK ASSESSMENT: FINAL REPORT.
F.G. Bercha & Associates Limited, Lavalin Offshore Incorporated, Fenco Consultants Limited, Dome Petroleum Limited, Esso Resources Canada Limited, Gulf Canada Resources Incorporated.
s.l. : s.n., 1983. various pag.

628.168 33 Ber

The joint authors of this report prepared historical statistics (mean spill size; frequency of spill; spill size probability distribution) which were then modified to make them appropriate for Arctic application. The statistics were used to predict the resulting oil spills for both pipeline and tanker systems. A comprehensive study was made of all available oil spill data, both conventional and Arctic. This report is fairly technical in nature and considerable use is made of charts and tables.

oil spill research / pollution, oil / Arctic / pipeline construction / tankers / risk analysis

A 295 OIL SPILL SIMULATIONS IN THE SOUTHEASTERN BEAUFORT SEA AND ALONG THE PROPOSED EASTERN TANKER ROUTE. REPORT D-81-2.
J.R. Marko and C.R. Foster.
Beaufort EIS Support Document 1982.
Sydney, British Columbia : Arctic Sciences Limited, 1981.
various pag.

628.168 33 Mark

This report, prepared for Dome Petroleum Limited, presents the results of 15 simulated accidental releases of oil into the Arctic marine environment. The different types of spills simulated include a blowout, a tanker fire and explosion, and a tanker collision and grounding. The results of the simulations are presented in tabular and graphic format and a summary is provided to explain the types and locations of the hypothetical spills, methods used to derive wind and ice input data and special features of individual simulations.

Dome / EIS / environmental impact / Arctic / Beaufort Sea / oil spills / blowouts / oil spill research / tankers / fire / explosions / wind / ice, sea / pollution, oil

A 296 "Oil Spills - Independent Views: Presentation to the oil-spill section, Fairmont Workshop."
Peter Burnet.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 58-60.

333.823 05 Arc 1984

This paper reviews oil spill research and countermeasures in the Canadian Arctic. With specific reference to the perspective of the general public, and public interest groups, the author discusses what progress has been made, over the past ten years, in understanding the causes and effects of Arctic oil spills and in improving industry's capacity for cleaning-up. However, it is pointed out that attention must also be paid to the socio-economic effects of oil spills and to the need for industry, government and northern peoples to reach some agreement on the general guidelines for compensation.

EIS / Beaufort Sea / Arctic / northern energy development / oil spill research / oil spill countermeasures / environmental impact / BIOS / COOSRA / AMOP / ecology / CARC / socio-economic impacts / native peoples / pollution, oil / oil companies / ecology, marine / workshops / APOA / CPA-OOD

A 297 "Oil Spills - Independent Views: Presentation to the Thirteenth Annual APOA/CPA-OOD Workshop."
Linda Gaborko.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 60-63.

333.823 05 Arc 1984

This paper looks at the six groups of marine life potentially at risk from spilled oil and explains what the impact on each is likely to be in the event of an offshore spill. Benthos, plankton, seaweeds and other marine plants, fish, marine mammals and seabirds are each considered. In addition, the author discusses oil spill countermeasures and the role of government, and industry, in ensuring preparedness to cope with oil spills.

workshops / ecosystems, aquatic / drilling, offshore / oil companies / transportation, marine / tankers / oil spill research / oil spill countermeasures / environmental impact / whales / seals / bears, polar / benthos / plankton / fish / aquatic habitats / shore birds / seabirds / waterfowl / ecology, marine / pollution, oil / regulatory agencies / biology, aquatic / legislation / Newfoundland / government / APOA / CPA-OOD

A 298 "Oil Spills - Independent Views: What Have we got to Lose?"
Dave Elliot.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 64-66.

333.823 05 Arc 1984

After giving a short history of the fishing industry on the north Pacific coast, the author of this paper addresses the environmental threat of oil spills, especially those that involve large tankers and drilling rigs. The impact of such oil spills on the fish indigenous to the coast of British Columbia is discussed together with the attendant potential threat to the fishing industry, and those who depend on it for their livelihood. In conclusion, the author suggests that sensitive fishing and habitat areas may need to be designated "no-go" areas for the oil industry and compensation and contingency plans developed to protect the environment and the economy of the area.

British Columbia / pollution, oil / oil spills / drilling, offshore / oil rigs / tankers / transportation, marine / salmon / fish / fisheries / ecosystems, aquatic / socio-economic impacts / communities / employment / environmental impact / workshops / APOA / CPA-OOD

A 299 OILED DEBRIS DISPOSAL AND STORAGE SITES.
R.M. Hardy & Associates Ltd.
Canada. Environmental Protection Service: Economic and Technical Review Report EPS 3-EC-79-3.
Ottawa, Ontario : Canada. Environmental Protection Service, 1979. 250 pp.

363.738 2 Har

This volume documents a study performed to locate landfill disposal and temporary storage sites, for oiled debris from sand and shingle beaches resulting from offshore oil spills, along the Beaufort Sea coast. The 217 landfill disposal sites and 223 temporary storage sites located are shown on maps and in aerial photographs and a fact sheet on each site is included. The study establishes guidelines for site selection, design, construction and reclamation of sites. Limitations on construction, utilization and reclamation due to seasonal problems with terrain stability, logistics support and cost effectiveness are considered.

Beaufort Sea / pollution, oil / oil spills / waste disposal / storage / topography / environmental impact / landforms / reclamation / construction

A 300 "Oilspill Workshop."
A.S. Telford.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 103-117.

333.823 05 Arc 1978

The proceedings of the oil spill workshop, held during the subject workshop, are presented in this report. The participants consider oil spill conditions and logistics for field testing, including locations for a test spill, time of year, sea state, weather and ice conditions, the type and volume of oil to be released and the number and type of support vessels and camps. In addition, the report presents fairly detailed results of discussions held on oil spill countermeasures.

pollution, oil / oil spill countermeasures / oil spill research / ice, sea / environmental impact / climatology / biology / ecosystems, aquatic / workshops / APOA / CPA

A 301 "An Overview of a Field Guide for Arctic Oil Spill Behavior."
Robert Schulze and Ivan Lissauer.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA, FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985.
pp. 399-403.

628.168 33 Osc

This paper describes the contents of a field guide for oil spill behavior developed to ensure timely and adequate containment and removal of spilled oil. The guide describes Arctic ice conditions, the physical properties of Prudhoe Bay crude oil as it weathers, oil spill behavior in cold water, ice conditions and spill retention potential for the Alaskan shoreline. Six spill scenarios show how the oil spill behavior information should be applied to solve actual problems.

conferences / Prudhoe Bay, Alaska / Alaska / oil spills / oil spill countermeasures / crude oil properties / pollution, oil / ice, sea / Beaufort Sea / arctic conditions / environmental impact

A 302 "The Physical and Chemical Fate of Spilled Oil."
Donald Mackay.
In PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
edited by F.R. Engelhardt.
London, England : Elsevier Applied Science Publishers Ltd., 1985.
pp. 37-61.

363.738 2 Pet

This author addresses the question of the behavior of oil spills in the Arctic climate as opposed to a more temperate one, and whether the harsher environment is likely to cause an increase in accidental oil spillage. As well, the question of applicability and effectiveness of conventional oil spill countermeasures in an Arctic environment is discussed, and the physical, chemical and engineering aspects of arctic oil spills are reviewed.

oil spills / arctic conditions / oil spill countermeasures / water-in-oil emulsions / sedimentation / ice, sea / crude oil properties / environmental impact / environmental assessment / pollution, oil

A 303 "The Physical Environment of the Beaufort Sea Related to Oil, Ice and Water Interactions."
A.R. Milne.
In PROCEEDINGS OF THE SIXTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 17-20, 1977.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1977. pp. 43-53.

333.823 05 Arc 1977

This paper presents the main features of the Beaufort Sea's physical marine environment, in relation to oil pollution which could result from a subsea oil-well blowout. The Beaufort Sea setting is described and sea ice features and the interaction of oil and sea ice are discussed. Oil spill countermeasures, clean-up methods and the problem of dealing with oil trapped beneath the ice are all covered in this fairly technical presentation which includes some graphs for illustrative purposes.

Beaufort Sea / ice, sea / pollution, oil / blowouts / subsea containment / oil spill countermeasures / oil wells / Continental Shelf, Canada / geology, marine / environmental impact / workshops / APOA / CPA

A 304 A PROSPECTUS ON THE BIOLOGICAL EFFECTS OF OIL SPILLS IN MARINE ENVIRONMENTS.
Wayne S. Duval, Linda C. Martin and Ron P. Fink.
Beaufort EIS Support Document 1982.
Vancouver, British Columbia : ESL Environmental Sciences Limited, 1981. n.p.

628.168 33 Duv

Prepared for Dome Petroleum Ltd., this extensive report analyses, through the examination of case histories and follow up studies, the biological consequences of oil spills. As well, the report summarizes the current state of knowledge regarding the biological effects of oil spills on coastal marine environments. An overview of the location, season, type and size of spills that have occurred around the world over the previous twenty years is presented. The documented or suggested biological effects of past spills as a function of oil type, size of spill, time of year, type of environment affected and clean-up response and latitude are discussed, as well as the long-term impacts of oil spills and subsequent recovery of various community types. A list of references cited is included and oil spill case history summary sheets are appended to the report.

pollution, oil / oil spill research / ecosystems, aquatic / biology, aquatic / benthic invertebrates / fish / seals / ducks / gulls / seabirds / waterfowl / sea otters / Dome / EIS / phytoplankton / zooplankton / environmental impact

A 305 "Recommended Methods for Testing the Fate and Effects of Dispersed oil in Marine Sediments."
J.W. Anderson et al.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 224-238.

628.168 33 ASTM

This paper reports on tests conducted to determine the extent of oil sorption on sediments, and retention of this association when sea water is flushed through the substrate. The methods used in conducting the tests are outlined and the alteration in hydrocarbon component composition is described. The tests were conducted on several benthic species. A short list of references is included.

oil spill countermeasures / pollution, oil / environmental impact / benthic invertebrates / benthos / dispersants / ecosystems, aquatic / biology, aquatic / conferences

A 306 *REPORT ON CONTAINMENT AND DISPOSAL OF DRILLING FLUIDS IN THE NORTHWEST TERRITORIES.*
The Arctic Petroleum Operators' Association and the Government of Canada, Department of Indian Affairs and Northern Development and the Department of the Environment.
Calgary, Alberta : Arctic Petroleum Operators' Association, 1974.
2 microfiche.

MF APOA 73-2

This document records the results of the activities of two government-industry working groups. The magnitude of the pollution associated with current methods of handling sump fluids, in order to develop effluent standards for the disposal of these fluids, is examined by one group. The second group presents recommendations towards developing guidelines for the location, design, construction and restoration of drilling sumps and pits, including revegetation and the potential impact on wildlife in the Arctic. Several tables are included as is a short bibliography.

pollution, oil / ecology / environmental protection / Arctic Islands / Mackenzie Valley, N.W.T. / wildlife / disease / geomorphology / wildlife habitats / Mackenzie Delta, N.W.T. / revegetation / waste disposal / terrain disturbance / government

A 307 "Resources and Planning of the Federal Government for Oil Spill Countermeasures in the Beaufort Sea."
S.L. Ross.
In PROCEEDINGS OF THE SIXTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 17-20, 1977.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1977. pp. 27-42.

333.823 05 Arc 1977

This paper outlines the federal government's activities relative to the development of an oil spill countermeasures capability in the Arctic and, in particular, in the southern Beaufort Sea. The author briefly explains the history that has lead to present programs and the apparent and/or real problems that should be addressed. As well, oil spill countermeasures are discussed and the roles played by industry, government, the Canadian and U.S. Coast-Guard, and the Arctic Marine Oilspill Program (AMOP) are outlined in some detail. The main focus of this paper is the organizational aspect of oil spill countermeasures but there is some brief discussion of current technology.

oil spill countermeasures / Beaufort Sea / Arctic / pollution, oil / AMOP / Canadian Coast Guard / U.S. Coast Guard / Arctic Oil Spill Research Program / government / tankers / drilling, offshore / environmental protection / workshops / APOA / CPA

A 308 "Revegetation of Arctic Tundra After an Oil Spill: A Case History."
Judith Brendel.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA, FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985.
pp. 315-318.

628.168 33 Osc

The author, who represents the Alyeska Pipeline Service Company, examines a comparison of revegetation techniques for arctic tundra which was conducted in 1982, 1983 and 1984 on a crude oil spill that occurred near Prudhoe Bay, Alaska, in 1981. This paper describes the various revegetation methods which were employed and provides comparative data.

conferences / revegetation / oil spills / pollution, oil / Prudhoe Bay, Alaska / pipeline hazards / environmental impact / Alyeska Pipeline Service Co.

A 309 A REVIEW OF COUNTERMEASURES FOR A MAJOR OIL SPILL FROM A VESSEL IN ARCTIC WATERS.
S.L. Ross Environmental Research Ltd.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EC-83-2.
Ottawa, Ontario : Canada. Environmental Protection Service, 1984.
73 pp.

628.168 33 SLR

The primary objectives of this study are to identify the deficiencies which exist in available oil spill technology when applied to a large tanker spill in the Arctic, and to identify the problems which would have to be overcome to eliminate these deficiencies. The study begins by examining historical tanker accidents and spills and the effectiveness of the cleanup operations attempted. The environmental and industrial settings and a review of the probable behavior of oil spills in the Arctic are presented. The technology necessary to successfully handle a northern oil spill is identified, through hypothesized spill scenarios. The capability of government organizations to handle the hypothesized tanker spills is assessed on the basis of both equipment availability and present government plans.

oil spills / technology / tankers / oil spill countermeasures / Arctic / environmental impact / government / regulatory agencies / ice, sea / climatology / currents / sorbents / dispersants / fireproof booms / skimmers / pollution, oil

A 310 A REVIEW OF THE DYNAMICS OF CONTAINED OIL SLICKS IN FLOWING WATER.
Y.L. Lau and S.A. Kirchhefer.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS-3-EE-74-3.
Ottawa, Ontario : Canada. Environmental Protection Service, 1974. 32 pp.

628.168 33 Lau

This report provides a review of published papers dealing with the dynamics of contained oil slicks in flowing water. The authors examine the assumptions made and analyses presented by previous studies and identify errors which were discovered during the review process. Recommendations for further research in the subject are included as is a short bibliography.

pollution, oil / oil spill research / oil spill countermeasures / currents / wind / oil spills / waves

A 311 A SELECTED BIBLIOGRAPHY ON OIL SPILL DISPERSANTS.
Kenneth G. Doe, Gary H. Harris and Peter G. Wells.
Canada. Environmental Protection Service: Economic and Technical Review Report EPS-3-EC-78-2.
Halifax, Nova Scotia : Canada. Environmental Protection Service (Atlantic), 1978. 98 pp.

016.628 Doe

This volume presents a selected and indexed bibliography on the chemistry, biological effects, use and effectiveness of oil spill dispersants. There are 364 references, listed alphabetically by author surname, and indexed by author and keyword.

bibliographies & indices / dispersants / pollution, oil / toxicology / oil spill countermeasures / environmental impact / oil spills

A 312 "Spill Impacts and Shoreline Cleanup Operations on Arctic and Sub-Arctic Coasts."
Edward H. Owens and Gordon A. Robillard.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
Washington, Dist. of Columbia : American Petroleum Institute, 1981.
pp. 305-309.

628.168 33 Osc 1981

This paper discusses oil spill response in ice-infested or Arctic environments and identifies environmental factors or constraints not applicable in more temperate climates. In particular, the authors emphasize that the potential impact of oil on biological habitats or communities must be carefully evaluated in terms of species distribution and population abundance at the time of a spill. As well, the authors discuss cleanup versus natural recovery, and priorities for protection and/or cleanup of specific sections of coast.

conferences / oil spills / oil spill countermeasures / wildlife habitats / aquatic habitats / pollution, oil / Arctic / ice, sea

A 313 STRANDED OIL IN COASTAL SEDIMENTS: PERMEATION IN TIDAL FLATS.
J.R. Harper and B. Humphrey.
Environmental Studies Revolving Funds Report No. 031.
Ottawa, Ontario : Environmental Studies Revolving Funds, 1986.
24 pp.

628.168 33 Har

Low energy coastal systems are considered among the most sensitive to oiling of marine ecosystems because of their vulnerability to oil stranding and the difficulty of their cleanup. This paper, published under the auspices of the Environmental Studies Revolving Funds (ESRF), presents the results of three experiments to quantify one component of oil-sediment interaction - the permeation of oil and retention in muddy-sand sediments. Tables and diagrams are included and there is a list of references.

ESRF / pollution, oil / sediments / ecosystems, aquatic / littoral zone

A 314 A STUDY OF ENVIRONMENTAL CONCERNS: OFFSHORE OIL AND GAS DRILLING AND PRODUCTION.
Robert Baker.
Canada. Environmental Protection Service. Policy and Planning Report EPS 2-EC-78-1.
Ottawa, Ontario : Canada. Environmental Protection Service, 1978. 112 pp.

333.823 16 Bak

In this study, material on the environmental concerns associated with offshore drilling and production activities has been synthesized with the Departments of Fisheries and Environment files on specific relevant projects. Most of these are traceable to specific weaknesses in offshore drilling and production procedures and management - hardware weaknesses are seldom identified as being of central importance. Areas of concern include the gradual deposition of pollutants from rigs, underwater pipelines, and the quality of such components as plans to handle oil spills, standards for safety and anti-pollution equipment and environmental impact.

environmental impact / DFO / DOE / government / oil spills / drilling, offshore / pollution, oil / oil spill countermeasures / pipelines / safety measures / wind / waves / ice, sea / waste disposal / pollution, industrial

A 315 "The Toxicity of Oil Spill Dispersants to Marine Organisms: A Current Perspective."
P.G. Wells.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 177-202.

628.168 33 ASTM

A current perspective on the toxicity of oil spill dispersants to a range of marine organisms, with particular emphasis on recently conducted studies, is offered in this paper. Existing information on the toxicity of dispersants is evaluated, laboratory studies with shrimp and other crustaceans are described, and recommendations for future research are given. A comprehensive list of references is included.

pollution, oil / oil spill countermeasures / crustaceans / ecology, marine / toxicity / environmental impact / dispersants / conferences

A 316 "Toxicity Testing with Constant or Decreasing Concentrations of Chemically Dispersed Oil."
J.W. Anderson et al.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 14-22.

628.168 33 ASTM

This technical paper describes an exposure system and method of quantifying toxicity to estimate the effects of oil on marine organisms under a variety of exposure conditions. Tests, which were conducted in a laboratory, involved shrimp, two oils (Prudhoe Bay crude and an Arabian crude) and two dispersants. A short list of references is provided.

pollution, oil / crustaceans / Prudhoe Bay, Alaska / toxicity / environmental impact / ecology, marine / dispersants / oil spill countermeasures / conferences

A 317 TYPES OF POTENTIAL EFFECTS OF OFFSHORE OIL AND GAS DEVELOPMENT ON MARINE MAMMALS AND ENDANGERED SPECIES OF THE NORTHERN BERING, CHUKCHI AND BEAUFORT SEAS.
Cleveland J. Cowles, Donald J. Hansen and Joel D. Hubbard.
Alaska Outer Continental Shelf Office Technical Paper #9.
Anchorage, Alaska : Alaska Outer Continental Shelf Office, 1981.
23 pp.

333.951 Cow

This paper summarizes information on the potential effects on marine mammals, endangered species and rare plants, associated with pending oil and gas development for the northern Bering Sea and other Arctic regions. Short and long term oil spill effects are examined as well as the effects of noise and gas condensate pollutants on aquatic habitats and ecosystems. A list of references cited is included.

environmental impact / Continental Shelf, Alaska / Bering Sea / Chukchi Sea / Beaufort Sea / whales / seals / bears, polar / toxicology / condensates / pollution, oil / pollution, noise / ecosystems, aquatic / biology, aquatic / aquatic habitats / oil spills / natural gas

VEGETATION, SOILS, LANDFORMS, GEOLOGY, PERMAFROST

A 318 "Acoustic Velocities of Nearshore Materials in the Alaskan Beaufort and Chukchi Seas."
John L. Morack and James C. Rogers.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 259-274.

551.468 7 Ala

This paper reports on an extensive marine seismic study which was conducted to locate ice-bonded subsea permafrost in the Alaskan Beaufort and Chukchi Seas. The study also yielded information on the acoustic properties of unbonded materials from these areas. The data are mostly of a survey nature but some testing was done in areas adjacent to drill holes where geologic data had been previously obtained. Many charts and graphs are included and a list of references is provided.

acoustic velocity / permafrost / Beaufort Sea, Alaskan / Chukchi Sea / geology / hydrography / Alaska / seismic exploration / seismic velocity

A 319 ALASKA NORTH SLOPE OIL-ROCK CORRELATION STUDY. ANALYSIS OF NORTH SLOPE CRUDE.
edited by Leslie B. Magoon and George E. Claypool.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1985. 682 pp.

553.282 097 87 Ala

The results of the Alaska North Slope oil-rock correlation study are presented in this volume. Thirty research groups took part in the study, divided into separate sections: oil companies, university laboratories, commercial laboratories and government laboratories. Each group was sent eight oils and 15 rocks, recovered from the National Petroleum Reserve in Alaska and one oil from the Prudhoe Bay field, for geochemical analysis. The variances and results of these analyses provide the reader with the opportunity to see how different groups approach correlation work, and focus attention on unsolved problems of Alaskan North Slope petroleum geology.

North Slope, Alaska / National Petroleum Reserve in Alaska / Prudhoe Bay, Alaska / geology / geochemistry / hydrocarbon reserves

A 320 ASSESSMENT OF MINERAL AND FUEL RESOURCE POTENTIAL OF THE PROPOSED NORTHERN YUKON NATIONAL PARK AND ADJACENT AREAS. (PHASE I).
Canada. Dept. of Energy, Mines and Resources; Geological Survey of Canada; and Canada. Department of Indian Affairs and Northern Development.
Geological Survey of Canada. Open file 760.
Ottawa, Ontario : Geological Survey of Canada, 1981. various pag.

333.811 GSC

The government's northern National Parks policy directs that inventories of potential mineral and fuel resources be made prior to setting aside lands for park purposes. This report presents preliminary (phase I) assessment results for the proposed Northern Yukon National Park. The geology, regional geochemistry and mineral occurrences of northern Yukon are examined and the methodology and results of mineral and fuel resource assessments for metallic minerals, coal, oil and gas are detailed. The volume is accompanied by six maps, and tables and diagrams. The appendices include an illustrated article entitled "Northern Yukon - a natural area of Canadian Significance" which examines the land, vegetation, wildlife and human history of the area.

government / national parks / Yukon Territory, Northern / geology / geochemistry / mineral deposits / hydrocarbon reserves / coal / vegetation / wildlife / history / GSC / DEMR / DIAND

A 321 AN ASSESSMENT OF MINERAL AND FUEL RESOURCE POTENTIAL OF YUKON TERRITORY: INTERIM REPORT.
W.D. Sinclair et al.
s.l. : Geological Survey of Canada, 1981. 113 pp.

553.097 191 Sin; Map R-136 Vault

This interim resource assessment study, prepared for use by the federal government in Yukon land claim negotiations, is presented in three main parts. Part I provides background information on Yukon's geological framework and on its mineral industry. Part II discusses the distribution of known Yukon resources. Part III presents assessments of the potential for occurrence of significant deposits in three categories - lode mineral deposits and gold; coal; and oil and gas. The report includes tables and a list of references and is accompanied by a map entitled, "Mineral deposits and assessment domains, Yukon Territory".

GSC / government / land claims / Yukon territory / geology / mineral deposits / gold / coal / natural gas / hydrocarbon reserves / mining

A 322 "Basins and New Frontiers."
Michel T. Halbouty.
In FUTURE PETROLEUM PROVINCES OF THE WORLD. PROCEEDINGS OF THE WALLACE E. PRATT MEMORIAL CONFERENCE, PHOENIX, DECEMBER 1984.
edited by Michel T. Halbouty.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1986. pp. 1-10.

553.282 Wal

Although the global transition to alternative energy sources has begun, this author argues that the world's chief reliance for energy resources during the coming decades will be on oil and natural gas supplies. Therefore, exploration activities must discover the oil and gas that lie untapped in both the known petroleum producing areas of the world and the frontier regions. This paper presents an overview of the basins of the world where it is suggested oil and gas will be found. Coloured illustrations are included and there is a short list of references.

hydrocarbon reserves / exploration / natural gas / conferences / geology

A 323 "Beaufort and Chukchi Seacoast Permafrost Studies."
J.C. Rogers and J.L. Morack.
In OUTER CONTINENTAL SHELF ENVIRONMENTAL ASSESSMENT PROGRAM: FINAL REPORTS OF PRINCIPAL INVESTIGATORS: VOLUME 34, AUGUST 1985.
Anchorage, Alaska : U.S. Department of Commerce, National Oceanic and Atmospheric Administration and U.S. Department of the Interior, Minerals Management Service, 1985. pp. 323-355.

333.916 41 Fin

This study forms part of the final report of the Outer Continental Shelf Environmental Assessment Program (OCSEAP). The primary purpose of the study was to develop an understanding of the distribution and nature of ice-bonded subsea permafrost in the Beaufort and Chukchi seacoast regions. The study used marine seismic techniques and this report outlines the procedures and interprets the study results. Maps, tables and diagrams are included and a list of references is provided.

OCS / OCSEAP / environmental assessment / permafrost / Beaufort Sea / Chukchi Sea / seismic exploration / seismic velocity / geophysics

A 324 "Circum-Arctic Petroleum Potential."
A.R. Green, A.A. Kaplan and R.C. Vierbuchen.
In FUTURE PETROLEUM PROVINCES OF THE WORLD. PROCEEDINGS OF THE WALLACE E. PRATT MEMORIAL CONFERENCE, PHOENIX, DECEMBER 1984.
edited by Michel T. Halbouty.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1986. pp. 101-130.

553.282 Wal

More than 30 sedimentary basins surround the Arctic Ocean. This paper presents a series of reconstructions of the ancient structural, depositional and climatic trends of the more important basins to evaluate the relative hydrocarbon potential of this frontier area. Maps depicting the crustal history of the sedimentary basins are included as are maps depicting basin filling, particularly the deposition of organic-rich source rocks, sealing sediments and reservoirs for petroleum accumulations. Petroleum occurrence in the Arctic is summarized. Many colour illustrations are included and a comprehensive list of references is provided.

Arctic Ocean / Arctic / geology / sedimentation / hydrocarbon reserves / conferences / sedimentology

A 325 COMPARISON OF SELECTED TERRAIN CHARACTERISTICS: ALCAN AND MACKENZIE VALLEY PIPELINES.
Geo-analysis Ltd.
Ottawa, Ontario : Geo-analysis Ltd., 1977. 2 vol.

551.300 971 9 Geo

Prepared for the Department of Indian Affairs and Northern Development (DIAND), this comparative study of selected terrain and geotechnical characteristics along the proposed Alcan, Yukon and Mackenzie Valley pipeline routes reveals a number of major differences and a number of similarities between the two routes. The main topics discussed are frost susceptibility, slope stability, erosion, icing, seismicity and comparison of the amount of bedrock present. Volume one contains the text, tables and a list of references. Volume two comprises maps of cross sections along each route showing selected characteristics.

geology / frost / seismicity / erosion / icing / slope stability / Alcan Pipeline / Mackenzie Valley Gas Pipeline / AHGP / DIAND / terrain classification / geotechnology / pipeline routes

A 326 CONVENTIONAL OIL RESOURCES OF WESTERN CANADA (LIGHT AND MEDIUM GRAVITY).
P.J. Lee et al.
Ottawa, Ontario : Geological Survey of Canada, 1986. 33 pp.

333.823 GSC

This report, which comprises an excerpt from a presentation to the House of Commons Standing Committee on Energy, Mines and Resources, summarizes an analysis of the remaining light and medium gravity conventional oil resources that may exist in the Western Canada Sedimentary Basin. This document offers the first major revision of this group of resources since 1978. The ultimate objective of this summary is to permit an analysis of future supplies of conventional oil from western Canada in terms of the quantities available, their characteristics in terms of size and distribution of pools or fields, the way in which future discoveries may differ from those of the past and implications for economics of supply.

GSC / government / hydrocarbon reserves / geology / socio-economic aspects / exploration

A 327 "The Dempster Highway - Dawson to Eagle Plain."
S.A. Harris, R.O. van Everdingen and W.H. Pollard.
In GUIDEBOOK TO PERMAFROST AND RELATED FEATURES OF THE NORTHERN YUKON TERRITORY AND MACKENZIE DELTA, CANADA.
edited by H.M. French and J.A. Heginbottom.
International Conference on Permafrost (4th : 1983 : Fairbanks) Guidebook ; 3.
Fairbanks, Alaska : State of Alaska. Division of Geological and Geophysical Surveys, Department of Natural Resources, 1983.
pp. 65-86.

551.384 Fre

As a background to a proposed excursion from Dawson to Eagle Plain, this guide examines a sample of the range of permafrost features and associated landforms along that route. A history of the Dempster Highway is included, as well as descriptions of the permafrost and terrain conditions. The construction of the highway is discussed and the consideration given to building materials, the effects of disturbing the terrain (which can disrupt the insulating surface vegetation) and other aspects of construction in northern locations are outlined. Maps and photographs are provided and the list of the proposed stops along the excursion route notes features to be examined.

conferences / Dawson, Yukon / Eagle Plain, Yukon / permafrost / landforms / Dempster Highway / road construction / vegetation / terrain disturbance / geology / geomorphology / soils

A 328 "The Dempster Highway - Eagle Plain to Inuvik."
S.A. Harris et al.
In GUIDEBOOK TO PERMAFROST AND RELATED FEATURES OF THE NORTHERN YUKON TERRITORY AND MACKENZIE DELTA, CANADA.
edited by H.M. French and J.A. Heginbottom.
International Conference on Permafrost (4th : 1983 : Fairbanks) Guidebook ; 3.
Fairbanks, Alaska : State of Alaska. Division of Geological and Geophysical Surveys, Department of Natural Resources, 1983.
pp. 87-112.

551.384 Fre

This article describes the stratigraphy and permafrost conditions of the Dempster Highway route between Eagle Plain, Yukon and Inuvik, N.W.T. The purpose of the article is to provide information for participants in an excursion along that route as part of the subject conference. The regional setting is described and the engineering design and construction difficulties encountered because of permafrost conditions during the construction of the Eagle River Bridge portion of the Dempster Highway are discussed.

conferences / Dempster Highway / stratigraphy / geology / permafrost / Eagle Plain, Yukon / Inuvik, N.W.T. / road construction / engineering / geomorphology / vegetation / soils

A 329 "Determining Distribution Patterns of Ice-Bonded Permafrost in the U.S. Beaufort Sea from Seismic Data."
K. Gerard Neave and Paul V. Sellmann.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 237-258.

551.468 7 Ala

The basis for this study is the noticeable increase in seismic velocity that occurs in most materials containing water when they freeze. Applied to the large amounts of seismic data collected for petroleum exploration, this phenomenon makes seismic techniques a reasonable approach for investigating the distribution of ice-bonded subsea permafrost. Velocity profiles and maps are included for the coast from Harrison Bay, Alaska to 40km east of Prudhoe Bay, Alaska. To assist in understanding the seismic results, the authors have produced velocity profiles from laboratory information on velocity versus temperature for various materials, and from temperature profiles onshore and offshore. Graphs and maps are used throughout and a short list of references is included.

permafrost / Harrison Bay, Alaska / Prudhoe Bay, Alaska / seismic velocity / Continental Shelf, Alaska / Beaufort Sea, Alaskan

A 330 DICTIONARY OF GEOLOGICAL TERMS.
3rd edition.
edited by Robert L. Bates and Julia A. Jackson.
Garden City, New York : Doubleday, 1984. 571 pp.

Ref 530.321 Dic

Prepared under the direction of the American Geological Institute, this dictionary provides the non-specialist with accurate definitions of the working vocabulary of the earth sciences.

dictionaries / geology

A 331 "Dielectric Studies of Permafrost Using Cross-Borehole VHF Pulse Propagation."
Steven A. Arcone and Allan J. Delaney.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 3-5.

551.384 Wor

This very technical paper describes permafrost electromagnetic properties studies carried out in the Fairbanks, Alaska area. The objective of the studies is to measure, in situ, the complex index of refraction of frozen silts, sands and gravel and correlate it with temperature, grain size and ice content.

workshops / permafrost / Fairbanks, Alaska / geophysics

A 332 ENGINEERING GEOLOGY OF THE BURIED HOT GAS PIPELINE BETWEEN POINTED MOUNTAIN, N.W.T. AND BEAVER RIVER, B.C.
E.B. Owen.
Ottawa, Ontario : Canada. Department of Energy, Mines and Resources, 1975. 57 pp.

557.19 Owe

This report describes some of the geologic features observed during construction, by Westcoast Transmission Company Limited, of a natural gas pipeline between Amoco's Pointed Mountain Gas Field and Beaver River, B.C. This was the first Canadian owned pipeline to be constructed in the Northwest Territories and, as such, generated considerable interest, especially when pre-construction investigations determined that some portions of the proposed route were underlain by permafrost. Soils and bedrock encountered along the route are identified and groundwater properties and permafrost are discussed. Pipeline construction methods are described and the text is supplemented by photographs and charts. A list of references is provided.

geology / soils / pipeline construction / Westcoast Transmission Co. Ltd. / Amoco / Pointed Mountain Gas Pipeline / pipeline routes / permafrost / terrain disturbance / terrain classification / Beaver River, B.C. / Northwest Territories

A 333 "Environmental Geology and Geomorphology of the Barrier Island-lagoon System Along the Beaufort Sea Coastal Plain From Prudhoe Bay to the Colville River."
P. Jan Cannon and Stewart E. Rawlinson.
In OUTER CONTINENTAL SHELF ENVIRONMENTAL ASSESSMENT PROGRAM: FINAL REPORTS OF PRINCIPAL INVESTIGATORS: VOLUME 34, AUGUST 1985.
Anchorage, Alaska : U.S. Department of Commerce, National Oceanic and Atmospheric Administration and U.S. Department of the Interior, Minerals Management Service, 1985. pp. 357-444.

333.916 41 Fin

Natural geological conditions and processes, termed here environmental geology, are best indicated by the geomorphology of an area. Recognition of landforms, and knowledge of the processes by which they form, enable prediction of future natural and human-induced changes. This study discusses these factors relative to the Alaskan Arctic coastal plain and the study forms part of the final report of the multidisciplinary Outer Continental Shelf Environmental Assessment Program (OCSEAP). The information presented is intended for use in development planning primarily related to hydrocarbon exploration and production. The study is illustrated and a list of references is provided.

OCS / OCSEAP / environmental assessment / geology / geomorphology / Alaska / Arctic / exploration / hydrocarbon production / landforms / engineering, environmental

A 334 FACTS AND PRINCIPLES OF WORLD PETROLEUM OCCURRENCE.
edited by Andrew D. Miall.
Calgary, Alberta : Canadian Society of Petroleum Geologists, 1980. 1003 pp.

553.28 Mia

This volume examines new exploration concepts and outlines the facts and principles of geology as applied to the petroleum industry. The geology of major oil producing regions of the world is examined in some detail, including, specifically, western Canada. Supply and demand and political and economic aspects are addressed.

exploration / geology / hydrocarbon reserves / petroleum industry / government / socio-economic aspects / Beaufort Sea / Mackenzie Delta, N.W.T. / Alberta / sedimentology

A 335 FINAL VEGETATION REPORT. MCKINLEY BAY, NORTHWEST TERRITORIES.
Hardy Associates (1978) Limited
Beaufort EIS Reference Works 1982.
s.l. : Hardy Associates (1978) Limited, 1979. various pag.

581.971 92 Har

This report, prepared for Dome Petroleum Limited, describes the collection of information on the vegetation of the McKinley Bay area. The results of the field study conducted are presented here as well as a description of the types of vegetation identified. The potential impact of a proposed marine base on the vegetation of the area is discussed. Maps, photographs and a list of references cited complete this report.

EIS / Dome / vegetation / environmental impact / McKinley Bay, N.W.T. / marine support base / oil spills

A 336 FINAL VEGETATION REPORT. NORTHERN PARRY PENINSULA.
Hardy Associates (1978) Limited.
Beaufort EIS Reference Works 1982.
s.l. : Hardy Associates (1978) Limited, 1979. various pag.

581.971 92 Hard

Prepared for Dome Petroleum Limited, this volume provides details of vegetation studies carried out in northern Cape Parry. The vegetation of the area is identified and described, including photocopies of photographs taken at the study area. There is a section discussing the potential impact of a proposed marine base development on the vegetation in the area. Maps are included (inbound) with this report and there is a list of references cited. As well, a list of the scientific and common names of plant species collected in the study area is provided.

Dome / EIS / environmental impact / Cape Parry, N.W.T. / vegetation / marine support base / oil spills

A 337 FUTURE PETROLEUM PROVINCES OF THE WORLD. PROCEEDINGS OF THE WALLACE E. PRATT MEMORIAL CONFERENCE, PHOENIX, DECEMBER 1984.
edited by Michel T. Halbouty.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1986. 708 pp.

553.282 Wal

This volume presents 31 papers given at the subject conference. The scope of the volume is world wide and ranges from philosophical overviews of world oil and gas potential to known giant oil fields, areas for future giant discoveries, and exploration of as yet unexplored and little known areas. Most papers are illustrated in colour and include lists of references, and an index is provided.

conferences / hydrocarbon reserves / geology / exploration / natural gas

A 338 "Geologic Processes and Hazards of the Beaufort and Chukchi Sea Shelf and Coastal Regions."
Peter W. Barnes et al.
In OUTER CONTINENTAL SHELF ENVIRONMENTAL ASSESSMENT PROGRAM: FINAL REPORTS OF PRINCIPAL INVESTIGATORS: VOLUME 34, AUGUST 1985.
Anchorage, Alaska : U.S. Department of Commerce, National Oceanic and Atmospheric Administration and U.S. Department of the Interior, Minerals Management Service, 1985. pp. 1-322.

333.916 Fin

Part of the final report of the Outer Continental Shelf Environmental Assessment Program (OCSEAP), this document studies the high latitude continental shelves, specifically the relative importance of ice in the regime of sedimentary processes and the influence of geology on the ice regime of Arctic shelves. The fundamental differences in the geologic environments of the Chukchi and Beaufort Seas are also discussed. Photographs, diagrams and tables supplement the text of this technical study and a list of references is provided.

OCS / OCSEAP / environmental assessment / ice / ice, sea / sedimentation / geology / Arctic / Chukchi Sea / Beaufort Sea / currents / geophysics / ice scour / bathymetry / Stamukhi Shoal / ice ridges

A 339 GEOLOGICAL AND GEOGRAPHICAL GUIDE TO THE MACKENZIE DELTA AREA.
edited by F.G. Young.
Calgary, Alberta : Canadian Society of Petroleum Geologists, 1978. 158 pp.

557.192 You

This guidebook was prepared for the Canadian Society of Petroleum Geologists International Conference on Facts and Principles of World Oil Occurrence. Intended for participants in a field trip to the Mackenzie Delta, this publication contains articles on geology, geography, history, natural environment and the economic environment of the area. The book is divided into three parts: Part A is concerned with establishing a regional geological background; Part B includes descriptions of the geology at each locality to be visited; and Part C is a collection of articles of geographic and economic interest. A list of references is provided and there is a list of geographic names in the area and their provenance.

Mackenzie Delta, N.W.T. / Canadian Society of Petroleum Geologists / geology / geography / socio-economic aspects / environmental assessment / history / native peoples / exploration

A 340 GEOLOGY AND ECONOMIC MINERALS OF CANADA.
5th edition.
Geological Survey of Canada
edited by R.J.W. Douglas.
Geological Survey of Canada. Economic Geology Series: No. 1.
Ottawa, Ontario : Canada. Department of Energy, Mines and Resources, 1976. 2 vol.

557 E1 1976

These volumes provide a general review of present knowledge of the geology of Canada, including economic aspects of mineral deposits. The many different aspects of geology are treated in considerable detail on a nationwide basis. There is an accompanying portfolio containing a geotectonic correlation chart for each major region and eight maps at 1:5 million scale dealing with the geology, tectonics, mineral deposits, glacial features, physiography and other aspects. In the text, factual data are summarized and economic and scientific interpretation and conclusions are dealt with separately. Both volumes are illustrated throughout, a list of references is included and there is a subject index.

geology / Canadian Shield / Arctic / geomorphology / socio-economic aspects / mineral deposits / maps

A 341 GEOLOGY, BIOSTRATIGRAPHY AND ORGANIC GEOCHEMISTRY OF JURASSIC TO PLEISTOCENE STRATA, BEAUFORT-MACKENZIE AREA, NORTHWEST CANADA: COURSE NOTES.
J. Dixon et al.
Calgary, Alberta : Canadian Society of Petroleum Geologists, 1985. 65 pp.

553.28 Dix

This volume contains a short course, with accompanying notes, which presents a regional overview of Jurassic (thought to cover the span of time between 190 and 135 million years ago) to Pleistocene (an epoch of the Quarternary period, beginning two to three million years ago and lasting until some 8000 years ago) geology, organic geochemistry and Tertiary biostratigraphy in the Beaufort Sea-Mackenzie Delta area. This review also summarizes the current state of ongoing basin analysis programs conducted by the Canadian Society of Petroleum Geologists. The volume is illustrated and each chapter includes a list of references.

geology / Canadian Society of Petroleum Geologists / stratigraphy / paleontology / geochemistry / Beaufort Sea / Mackenzie Delta, N.W.T. / hydrocarbon reserves / condensates

A 342 GEOTECHNICAL INVESTIGATIONS IN THE SOUTHERN BEAUFORT SEA - SPRING 1984.
P.J. Kurfurst et al.
Ottawa, Ontario : Geological Survey of Canada, 1984. 99 pp.

624.151 36 Kur

This volume documents an extensive program of geotechnical investigations of frozen and unfrozen seabottom sediments carried out in the southern Beaufort Sea, near Tuktoyaktuk. (The area was selected because of its close proximity to proposed pipeline routes and other study areas investigated in previous studies.) The object of this program is to provide data required for evaluation of the physical properties of the seabottom sediments and to correlate and compare them with their acoustic properties. Graphs and charts are used throughout to illustrate the study results.

geotechnology / sedimentology / Beaufort Sea / Tuktoyaktuk, N.W.T. / pipeline routes / geology / permafrost / water temperature / acoustic velocity / drilling, offshore / seismic exploration

A 343 GEOTECHNICAL PROPERTIES AND FREEZE/THAW CONSOLIDATION BEHAVIOR OF SEDIMENT FROM THE BEAUFORT SEA, ALASKA.
Homa J. Lee, William J. Winters and Edwin J. Chamberlain.
s.l. : U.S. Department of the Interior. U.S. Geological Survey, 1985. 83 pp.

624.151 36 Lee

This preliminary report (a publication not reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature) describes and discusses two investigations into the interaction of ice and the seafloor in the Alaskan Beaufort Sea. The first section (part A) provides a previously unavailable data base on which studies of undersea permafrost, seasonal freeze/thaw cycling and ice gouging can be based. Part B studies the influence of freeze/thaw processes on Beaufort Sea sediment. Tables and diagrams supplement the text and a list of references is provided.

ice, sea / Beaufort Sea, Alaskan / permafrost / ice scour / thawing / sedimentation / geotechnology / stratigraphy / geology

A 344 "Giant Oil and Gas Fields."
S.W. Carmalt and Bill St. John.
In FUTURE PETROLEUM PROVINCES OF THE WORLD. PROCEEDINGS OF THE WALLACE E. PRATT MEMORIAL CONFERENCE, PHOENIX, DECEMBER 1984.
edited by Michel T. Halbouty.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1986.
pp. 11-53.

553.282 Wal

A giant oil or gas field is defined as one having 500 million barrels of recoverable oil or equivalent gas. This paper describes the geologic setting and classification, and discovery rates of the 509 (at the time of writing) known giants as well as discussing future oil supplies in light of the decrease in exploration and discovery rates due to economic (rather than geologic) factors. Each of the 509 giant fields is listed in a table providing information such as location, recoverable reserves, classification, depth and geologic age. The fields are listed alphabetically by name, cross referenced to the main table. References are provided.

geology / hydrocarbon reserves / natural gas / exploration / socio-economic aspects / conferences

A 345 GIANT OIL AND GAS FIELDS OF THE DECADE 1968-78.
edited by Michael T. Halbouty.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1980.
596 pp.

553.28 Gia

This volume presents a collection of papers which discuss the accumulations of vast reserves of petroleum, worldwide, and the geology and conditions under which the oil and/or gas were formed. A giant oil field is defined in this collection as being a contiguous surface area beneath which one or more reservoirs either has produced or is expected to produce 100 million barrels of conventional oil or one trillion cubic feet of combustible gas (in the Middle East, North Africa and Asiatic Russia, 500 billion barrels of oil or three trillion cubic feet of gas). There are numerous illustrations, many in colour, and reference lists and an index are provided.

hydrocarbon reserves / geology / natural gas / sedimentology / stratigraphy / geomorphology / exploration

A 346 GUIDEBOOK TO PERMAFROST AND RELATED FEATURES OF THE NORTHERN YUKON TERRITORY AND MACKENZIE DELTA, CANADA.
edited by H.M. French and J.A. Heginbottom.
International Conference on Permafrost (4th : 1983 : Fairbanks) Guidebook ; 3.
Fairbanks, Alaska : State of Alaska. Division of Geological and Geophysical Surveys, Department of Natural Resources, 1983.
186 pp.

551.384 Fre

The primary objective of this guide is to illustrate permafrost and associated geomorphic phenomena existing in the northern interior Yukon and Mackenzie Delta regions. Although prepared specifically for participants in the excursion portion of the subject conference, the papers included in this volume are of relevance to non-participants interested in the natural landscape of this region of Arctic Canada. All papers included are illustrated and a list of references is provided.

conferences / permafrost / geomorphology / Yukon Territory, Northern / Mackenzie Delta, N.W.T. / Mackenzie Delta, Yukon / Tuktoyaktuk, N.W.T. / Inuvik, N.W.T. / geology / topography / stratigraphy / vegetation / soils / Dempster Highway / Arctic / Northwest Territories / climatology / hydrology

A 347 INUVIK SNOW ROAD ENVIRONMENTAL ASSESSMENT REFERENCE: REPORT - JUNE 27, 1974.
Northern Engineering Services Company Ltd.
Calgary, Alberta : Northern Engineering Services Company Ltd., 1974. 13 pp.

625.792 NESCL

This report documents tests conducted near Inuvik, N.W.T., to determine the economical, structural and environmental feasibility of building a snow road over various terrain conditions. The effects of the snow road on vegetation and permafrost are discussed as well as the surface elevation, organic layer and active layer measurements taken before and after construction and use of the snow road. Tables and diagrams are used for illustrative purposes.

Inuvik, N.W.T. / socio-economic aspects / environmental assessment / road construction / snow roads / vegetation / permafrost / terrain disturbance

A 348 INVESTIGATION OF SUBSURFACE CONDITIONS AT KING POINT, YUKON TERRITORY.
M.J. O'Connor & Associates Ltd. for Indian and Northern Affairs Canada.
s.l. : s.n., 1986. 2 vol.

624.151 7 MJO

The findings of a geotechnical site investigation at King Point are reported in this document. Because deep water occurs relatively close to the coastline and granular resource deposits occur in close proximity, King Point has generated interest as a potential marine terminal and harbour for servicing offshore activities related to hydrocarbon exploration and development in the Beaufort Sea. The purpose of this site investigation is to acquire data to permit engineering assessment of the potential impacts of the proposed developments on both coastal and onshore environments proximate to King Point. Volume 1 contains the text of the study results and volume II contains appendices. Maps and charts are used throughout and a list of references is provided.

King Point, Yukon / marine terminals / geotechnology / environmental assessment / northern energy development / Beaufort Sea / geomorphology / bathymetry / hydrology / oceanography / climatology / Dome / ice, ground / stratigraphy / sedimentation / morphology

A 349 "The Klondike and Dawson."
H.M. French, S.A. Harris and R.O. van Everdingen.
In GUIDEBOOK TO PERMAFROST AND RELATED FEATURES OF THE NORTHERN YUKON TERRITORY AND MACKENZIE DELTA, CANADA.
edited by H.M. French and J.A. Heginbottom.
International Conference on Permafrost (4th : 1983 : Fairbanks) Guidebook ; 3.
Fairbanks, Alaska : State of Alaska. Division of Geological and Geophysical Surveys, Department of Natural Resources, 1983.
pp. 35-65.

551.384 Fre

This article, which is in the form of a guide, was prepared specifically for participants in an excursion organized as part of the subject conference. The geology, geomorphology, climatology, and permafrost conditions of the Klondike district and Dawson are described. Photographs and maps are provided and the itinerary for the excursion is included.

conferences / geology / geomorphology / stratigraphy / climatology / permafrost / Klondike district, Yukon / Dawson, Yukon / vegetation / soils / ground temperature

A 350 LEXICON OF CANADIAN STRATIGRAPHY, VOLUME 1 AND VOLUME 2.
Canadian Society of Petroleum Geologists.
Calgary, Alberta : Canadian Society of Petroleum Geologists, 1981.
2 vol.

Ref 551.700 971 Lex

Part of a set of six volumes which cover all of Canada, Volume 1 of the subject set covers the Arctic Archipelago and Volume 2 Yukon-Mackenzie. This geological lexicon provides an alphabetical listing and description of groups, formations and members that have appeared in geological literature. Each volume contains a comprehensive list of references.

geology / stratigraphy / Yukon Territory / Mackenzie District, N.W.T. / Arctic Islands / Canadian Society of Petroleum Geologists / Arctic / Sverdrup Basin, N.W.T. / Ellef Ringnes Island, N.W.T.

A 351 "Mackenzie Delta and Inuvik."
J.A. Heginbottom and C. Tarnocai.
In GUIDEBOOK TO PERMAFROST AND RELATED FEATURES OF THE NORTHERN YUKON TERRITORY AND MACKENZIE DELTA, CANADA.
edited by H.M. French and J.A. Heginbottom.
International Conference on Permafrost (4th : 1983 : Fairbanks) Guidebook ; 3.
Fairbanks, Alaska : State of Alaska. Division of Geological and Geophysical Surveys, Department of Natural Resources, 1983.
pp. 113-146.

551.384 Fre

The Mackenzie Delta region comprises the northeastern flank of the Richardson Mountains and Arctic Ranges, the Mackenzie Delta, the coastal plain east of the delta and the northwestern edge of the Anderson Plain. The geomorphology, geology, hydrology, ice conditions and vegetation of the region are examined in this paper. Intended for use as a guide during the excursion portion of the subject conference, a list is provided which notes points of interest in the region. Photographs of Inuvik are included and a description of its location, public works, housing and utilities.

conferences / Richardson Mountains, N.W.T. / Mackenzie Delta, Yukon / Mackenzie Delta, N.W.T. / Inuvik, N.W.T. / arctic regions / Yukon Territory / Northwest Territories / permafrost / geomorphology / geology / hydrology / ice / vegetation / socio-economic aspects / Arctic

A 352 MACKENZIE DELTA-BEAUFORT SEA DEVELOPMENT PLAN: PERMAFROST RESPONSE STUDY NEARSHORE AND ONSHORE PIPELINE GEOTHERMAL ANALYSIS.
EBA Engineering Consultants Ltd.
s.l. : s.n., 1981. 22 pp.

624.151 36 EBA

This report presents the results of a study of the geothermal interaction between a subsea oil pipeline and surrounding permafrost soil. (The hypothetical pipeline is intended to carry oil from offshore production islands in the Beaufort Sea to a pipeline terminal on Richards Island, N.W.T.) The report provides a preliminary estimate of the extent of thaw that may occur during the operating lifetime (for the purposes of this study assumed at 25 years) of such a buried pipeline.

geophysics / pipelines / pipelines, offshore / permafrost / Richards Island, N.W.T. / Beaufort Sea / soil temperature / thawing / technology

A 353 "Medium Scale Maps of Permafrost and Ground Ice Conditions, Tuktoyaktuk and Illisarvik Areas, Western Arctic Coast, Canada."
J.A. Heginbottom.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 15-18.

551.384 Wor

A general knowledge of ground ice conditions is important in planning many forms of industrial and developmental activity within permafrost regions. This technical paper discusses the Geological Survey of Canada's (GSC) mapping work relative to information on surficial geology, ice and permafrost conditions in the Tuktoyaktuk and Illisarvik areas of the Northwest Territories.

workshops / permafrost / GSC / mapping / ice / geology / Tuktoyaktuk, N.W.T. / Illisarvik, N.W.T. / ice, ground

A 354 "[Northern Yukon Territory and Mackenzie Delta] Regional Setting - Physiography and Geology."
O.L. Hughes, R.O. van Everdingen and C. Tarnocai.
In GUIDEBOOK TO PERMAFROST AND RELATED FEATURES OF THE NORTHERN YUKON TERRITORY AND MACKENZIE DELTA, CANADA.
edited by H.M. French and J.A. Heginbottom.
International Conference on Permafrost (4th : 1983 : Fairbanks) Guidebook ; 3.
Fairbanks, Alaska : State of Alaska. Division of Geological and Geophysical Surveys, Department of Natural Resources, 1983.
pp. 5-34.

551.384 Fre

This technical paper describes the geology, geomorphology, climatology, hydrology, and permafrost distribution in the northern Yukon Territory and the Mackenzie Delta, N.W.T. In addition, the authors examine the soils and vegetation in these areas, noting that all soils in northern Canada are characterized by a cold soil climate and, in most cases, by the presence of permafrost. Many photographs, maps and diagrams are included to supplement the text of this paper.

conferences / geology / geomorphology / climatology / hydrology / permafrost / Yukon Territory, Northern / Mackenzie Delta, N.W.T. / vegetation / soils / ground temperature

A 355 OIL AND NATURAL GAS RESOURCES OF CANADA 1983.
R.M. Proctor, G.C. Taylor and J.A. Wade.
Geological Survey of Canada Paper 83-31.
Ottawa, Ontario : Geological Survey of Canada, 1984. 59 pp.

557 P83-31

The oil and natural gas resources of Canada are evaluated on a systematic basis by the Geological Survey of Canada (GSC). This report summarizes the current estimates of quantities of oil and natural gas that are inferred to exist but not yet discovered. Analysis of resources is made for each of Canada's petroleum regions, addressing both conventional and non-conventional resources. The GSC's estimates of potential resources are supplemented by information provided by the Canadian Oil and Gas Lands Administration (COGLA) and the National Energy Board (NEB). There are illustrations throughout this report and a glossary and list of references are provided.

hydrocarbon reserves / GSC / natural gas / COGLA / NEB / geology / stratigraphy / Beaufort Sea / Arctic Islands / Tarsiut / Kugmallit Bay, N.W.T. / Mackenzie Delta, N.W.T.

A 356 OUTER CONTINENTAL SHELF ENVIRONMENTAL ASSESSMENT PROGRAM: FINAL REPORTS OF PRINCIPAL INVESTIGATORS: VOLUME 34, AUGUST 1985.
Anchorage, Alaska : U.S. Department of Commerce, National Oceanic and Atmospheric Administration and U.S. Department of the Interior, Minerals Management Service, 1985. 444 pp.

333.916 41 Fin v.34

This Outer Continental Shelf Environmental Assessment Program (OCSEAP) final report contains three separate studies - The Geologic Processes and Hazards of the Beaufort and Chukchi Sea Shelf and Coastal Regions; Beaufort and Chukchi Seacoast Permafrost Study; and The Environmental Geology and Geomorphology of the Barrier Island-Lagoon System along the Beaufort Sea Coastal Plain. Each study is illustrated and lists of references are included. The OCSEAP is managed by the National Oceanic and Atmospheric Administration, U.S. Department of Commerce and primarily funded by the Minerals Management Service, U.S. Department of the Interior, through interagency agreement.

OCS / OCSEAP / environmental assessment / geology / Beaufort Sea / Chukchi Sea / permafrost / geomorphology / exploration / ice, sea / Arctic

A 357 "Permafrost Distribution in Northern Canada: Interpretation of Well Logs."
A. Judge and A. Taylor.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 19-25.

551.384 Wor

This technical paper examines the interpretation of well log data to determine permafrost characteristics and distribution. It is reported that the base of permafrost has been determined using the conventional well logs from 220 wells drilled for hydrocarbon exploration in the Mackenzie Valley and the Yukon, 160 wells in the Mackenzie Delta-Beaufort Sea region and 150 in the Arctic islands. With the aid of maps, the permafrost conditions in these areas are described. A list of references is provided.

workshops / well logs / permafrost / exploration / drilling / Mackenzie Valley, N.W.T. / Yukon Territory / Mackenzie Delta, N.W.T. / Beaufort Sea / Arctic Islands

A 358 "Principles of Soil Freezing and Frost Heaving."
Dwayne M. Anderson et al.
In FROST ACTION AND ITS CONTROL; A STATE OF THE PRACTICE REPORT PREPARED BY THE TECHNICAL COUNCIL ON COLD REGIONS ENGINEERING OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS.
edited by Richard L. Berg and Edmund A. Wright.
Technical Council on Cold Regions Engineering Monograph.
New York, New York : American Society of Civil Engineers, 1984. pp. 1-21.

624.151 36 Berg

This paper consists of a review of the fundamental principles of soil freezing and thawing, together with an introduction to the modern literature of ice segregation and frost heaving. There is a lengthy bibliography covering scientific and engineering disciplines relative to the subject and encompassing overseas as well as North American data.

frost heaving / engineering / bibliographies & indices / science / soil temperature / ground temperature / thawing

A 359 "Prudhoe Bay - A Ten Year Perspective."
H.C. Jamieson, L.D. Brockett and R.A. McIntosh.
In GIANT OIL AND GAS FIELDS OF THE DECADE 1968-1978.
edited by Michael T. Halbouty.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1980.
pp. 289-314.

553.28 Gia

The Prudhoe Bay oil and gas field is located on the North Slope of Alaska, adjacent to the Beaufort Sea coastline. This paper presents a summary of the geology of the area and its hydrocarbon potential and then discusses the history of exploration which led to the discovery of the hydrocarbon reserves. The author argues that the sequence of exploration, development and production in the area has been characterized by environmental, social, legal, political and economic complexity and controversy. Maps and diagrams are included and there is a list of references.

Prudhoe Bay, Alaska / North Slope, Alaska / Beaufort Sea / geology / exploration / hydrocarbon reserves / hydrocarbon production / environmental impact / socio-economic aspects / legal aspects / government / Alaska

A 360 RECONNAISSANCE OF VEGETATION AND SOILS ALONG THE DEMPSTER HIGHWAY, YUKON TERRITORY: II. SOIL PROPERTIES AS RELATED TO REVEGETATION.
W. Stanek.
Victoria, British Columbia : Canada. Department of the Environment. Canadian Forestry Service, 1982. 28 pp.

631.471 9 Sta

In July 1979, Foothills Pipelines (Yukon) Ltd. (FPL(Y)) filed plans with the National Energy Board (NEB) to construct and operate a gas pipeline from the Mackenzie Delta, N.W.T., to a point near Whitehorse, Yukon Territory. This report contains information on the nutrient and element content of 100 soil samples collected along the Dempster Highway, Yukon. Information on the depth to permafrost and generic soil types is also provided. The report is concerned with revegetation aspects of soils occurring along the proposed pipeline route. Maps, photographs and tables are included and there is a short list of references and a glossary.

FPL(Y) / NEB / pipeline routes / Yukon Territory / Mackenzie Delta, N.W.T. / nutrients / soils / Dempster Highway / permafrost / slope stability / revegetation

A 361 RECOVERY OF ARCTIC AND SUB-ARCTIC VEGETATION NINE SUMMERS AFTER CRUDE AND DIESEL OIL SPILLS.
T.C. Hutchinson.
Canada. Department of Indian Affairs and Northern Development. Northern Affairs Program. Environmental Studies No. 22.
Ottawa, Ontario : Canada. Ministry of Indian Affairs and Northern Development, 1984. 39 pp.

333.781 Hut

Experimental oil spills were set up from 1972-1975 in the spruce taiga at Norman Wells and on the tundra at Tuktoyaktuk, Northwest Territories. This report discusses the monitoring program and results some six to nine summers later, in 1980. It is noted that both experimental oil spill sites still show very marked effects of the spills. A major factor in this is the generally very poor recovery of the lichens and mosses which constitute a high percentage of the flora of the regions studied. This document describes the methods used in the experiments and discusses the results relative to each site. The text is supplemented by tables and photographs and a glossary of terms is included.

Norman Wells, N.W.T. / tundra / taiga / Tuktoyaktuk, N.W.T. / oil spills / pollution, oil / vegetation / trees / arctic conditions / environmental impact

A 362 REMOTE SENSING DATA SUMMARY: MACKENZIE DELTA-BEAUFORT SEA-HERSCHEL ISLAND-SACHS HARBOUR.
W.J. Aird and S.P. Pierce.
Canada. Environmental Protection Service. Environmental Assessment & Design Division EPS 3-EC-76-3.
Ottawa, Ontario : Canada. Environmental Protection Service, 1976. n.p.

912.719 Air

This report covers the remote sensing data, up to 1985, available at the National Air Photo Library (NAPL) covering the Mackenzie Delta - Beaufort Sea - Herschel Island - Sachs Harbour. Guidance is provided on how the original data may be retrieved and an example of the data retrieval procedure is given. The remote sensing data is presented in tabular form with index maps showing the area covered by each quadrant used in the tables.

Mackenzie Delta, N.W.T. / Beaufort Sea / Herschel Island, Yukon / Sachs Harbour, N.W.T. / maps / remote sensing / NAPL

A 363 REVEGETATION AND IMPACT ASSESSMENT STUDIES IN THE MACKENZIE RIVER REGION.
Hardy Associates (1978) Limited.
Beaufort EIS Reference Works 1982.
s.l. : Hardy Associates (1978) Limited, 1980. 79 pp.

333.731 Har

Hydrocarbon exploration and development in the Mackenzie River Valley and Delta regions has led to concern that the environment be adequately protected and that areas disturbed be properly reclaimed. This report, commissioned by Esso Resources Canada Limited, presents the findings of a number of revegetation and impact assessment studies conducted in the Mackenzie River Valley and Delta regions in the early 1970s. The report is divided into two major sections. The first deals with the results of revegetation studies in the subject regions. The second section presents the findings of studies on the impact of snow road construction and use, and on the effects of winter methanol spills on vegetation, active layer thickness and surface elevation. This report is illustrated and includes a list of references cited.

exploration / hydrocarbon production / EIS / Esso / environmental impact / Mackenzie River / Mackenzie Delta, N.W.T. / revegetation / reclamation / snow / road construction / vegetation / methanol

A 364 REVIEW OF ADDENDA TO ENVIRONMENTAL IMPACT STATEMENT FOR THE YUKON SECTION OF THE ALASKA HIGHWAY GAS PIPELINE.
Peter J. Williams & Associates Ltd.
Ottawa, Ontario : Peter J. Williams & Associates Ltd., 1982. 31 pp.

PAM 1982-54

This report presents a view of geotechnical aspects of the Alaska Highway Gas Pipeline (AHGP) proposals. The report concerns submissions to the Federal Environmental Assessment Review Office (FEARO) which constitute an addendum to the Environmental Impact Statement (EIS) submitted in 1979 by Foothills Pipe Lines (South Yukon) Ltd. (FPL(SY)). The geotechnical aspects of the submissions are numerous and diverse and in this review the authors concentrate only on fundamental questions related to design values for pipeline displacement and stress due to frost heave, control of frost heave, thaw settlement and related research and development activities. A list of references is provided.

AHGP / geotechnology / permafrost / FEARO / FPL(SY) / EIS / pipeline design / thawing / frost heaving

A 365 SANDSTONE DEPOSITIONAL ENVIRONMENTS.
edited by Peter A. Scholle and Darwin Spearing.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1982.
410 pp.

551.7 San

This study of sandstone depositional environments is intended for the use of petroleum and/or field geologists. The book is organized in a specific order from non-marine to deep-marine settings and is extensively illustrated with both diagrams and coloured photographs of sedimentary structures. Each chapter includes a list of references cited and the volume is indexed.

geology / sedimentology / hydrocarbon reserves / exploration

A 366 "Sediment Characteristics of the Lagoons of the Alaskan Beaufort Sea Coast, and Evolution of Simpson Lagoon."
A. Sathy Naidu et al.
In THE ALASKAN BEAUFORT SEA. ECOSYSTEMS AND ENVIRONMENTS.
edited by Peter W. Barnes, Donald M. Schell and Erk Reimnitz.
Toronto, Ontario : Academic Press, 1984. pp. 275-292.

551.468 7 ALA

This paper describes the sediments and depositional settings of the lagoons along the microtidal coast of the Alaskan Beaufort Sea, and reports the erosional rates of the adjacent mainland coast. As well, the authors present stratigraphic evidence showing that some North Slope lagoons are evolved from coalescence of coastal lakes. It is noted that during the past two decades there has been a surge in the study of sediments and sedimentary processes of barrier islands and lagoons, bays, or sounds. Much of this study activity has been generated from the recognition by geologists that ancient lithified representatives of barrier island deposits constitute an important repository for hydrocarbons.

Beaufort Sea, Alaskan / Simpson Lagoon, Alaska / stratigraphy / North Slope, Alaska / erosion / lakes / sedimentology / geology

A 367 SEISMIC STRATIGRAPHIC INTERPRETATION AND PETROLEUM EXPLORATION.
L.F. Brown and W.L. Fisher.
American Association of Petroleum Geologists. Continuing Education Course Note Series #6.
Austin, Texas : American Association of Petroleum Geologists, 1979. various pag.

553.28 Bro

These course notes summarize the status of seismic stratigraphy, particularly as it related to hydrocarbon exploration. The information is presented in two parts - part one provides a comprehensive review of the basic concepts and techniques involved, and part two is comprised of illustrations with captions. Both parts include references.

stratigraphy / geology / hydrocarbon reserves / seismic exploration / geophysics / geotechnology

A 368 "Shallow Induction Measurements in Permafrost Terrain."
K. Kawasaki and T.E. Osterkamp.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 26-27.

551.384 Wor

In this summary of a paper presented at the subject workshop, the authors discuss the problems arising from the thaw instability of permafrost which are likely to be encountered during development of resources in Alaska (three quarters of the land surface of Alaska and its Continental Shelf are underlain by permafrost). Geophysical exploration techniques applied to permafrost detection are discussed together with modeling techniques used for survey purposes.

workshops / thawing / permafrost / Alaska / geophysics / exploration / ice, ground / vegetation / technology / Continental Shelf, Alaska

A 369 STRESS HISTORY IN THE BEAUFORT SEA: AN INITIAL STUDY.
Elisabeth Hivon.
s.l. : s.n., 1983. various pag.

551.809 163 27 Hiv

This report reviews available consolidation data for surficial sediments (top 200 metres) for the Kringalik Plateau and Tingmiark Plain areas of the Beaufort Sea. (Consolidation refers to the reduction in void ratio when sediment is subjected to an increase in pressure.) The data are re-analysed to determine the state of consolidation. It is reported that the top few metres are apparently over-consolidated while below ten to 15 metres the soils tend to be normally consolidated. Much of the information presented is in tabular format and a list of references is provided.

sediments / Beaufort Sea / Kringalik Plateau / Tingmiark / geology / soil temperature

A 370 "Subsea Permafrost: Field Mapping and Numerical/Physical Modeling of its Spatial Distribution in the Beaufort Sea."
S.M. Blasco and D.L. Lewton.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 6.

551.384 Wor

This brief article, which discusses the identification of four types of subsea permafrost in the upper 100m of sediment in the Beaufort Sea Continental Shelf, is an abstract of a paper presented at the subject workshop. The authors describe the geotechnical data and seismic profiles used in identifying the permafrost and describe a new scale modeling facility and its projected use in further research activities related to subsea permafrost.

workshops / permafrost / Continental Shelf, Canada / Beaufort Sea / geotechnology / seismic exploration

A 371 "Suggested Legend Terminology for Permafrost Mapping."
R.A. Kreig.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 41-47.

551.384 Wor

This paper discusses the terminology used for mapping the areal extent of permafrost (as opposed to mapping frozen soil types or ground ice content). The author reviews previously used terminology and presents a suggested new legend terminology. A list of references is provided.

workshops / permafrost / mapping

A 372 SUMP STUDIES V - ECOLOGICAL CHANGES ADJACENT TO SUMPS AT EXPLORATORY WELLSITES IN THE MACKENZIE DELTA AND NORTHERN YUKON. (A SUMMARY REPORT).
D.W. Smith and T.D.W. James.
Canada. Department of Indian Affairs and Northern Development.
Environmental Studies No. 35.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1985. 53 pp.

628.168 3 Smi

This report compiles the results of surveys conducted between 1977 and 1981 on the environmental effects of disposal and spillage of drilling wastes at two exploratory wellsites in the Mackenzie Delta, N.W.T. and one site in the Yukon. The surveys were funded by the Department of Indian Affairs and Northern Development (DIAND), the Department of the Environment (DOE) and the Arctic Petroleum Operators' Association (APOA) and were conducted under the auspices of the Arctic Land Use Research Project. References are provided and the results of soil and vegetation analyses are included.

pollution / environmental impact / Mackenzie Delta, N.W.T. / Yukon Territory / DIAND / DOE / APOA / Arctic Land Use Research Project / Yukon Territory, Northern / drilling fluids / vegetation / soils

A 373 "Survey of Methods for Classifying Frost Susceptibility."
Edwin J. Chamberlain et al.
In FROST ACTION AND ITS CONTROL; A STATE OF THE PRACTICE REPORT PREPARED BY THE TECHNICAL COUNCIL ON COLD REGIONS ENGINEERING OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS.
edited by Richard L. Berg and Edmund A. Wright.
Technical Council on Cold Regions Engineering Monograph.
New York, New York : American Society of Civil Engineers, 1984. pp. 105-141.

624.151 36 Berg

Methods for determining the frost susceptibility of soil and granular materials used in road and airfield construction are reviewed in this paper. The methods employed by transport departments in Canada, the U.S. and Europe are included, concentrating on methods currently in use or under consideration in seasonal frost regions. A list of references is provided.

frost heaving / road construction / ground temperature / soil temperature / technology / thawing / U.S.A. / Europe / soils

A 374 SYSTEMATIC AND STRATIGRAPHIC PALYNOLOGY OF EOCENE TO PLIOCENE STRATA IN THE IMPERIAL NUKTAK C-22 WELL, MACKENZIE DELTA REGION, DISTRICT OF MACKENZIE, N.W.T.
G. Norris.
Geological Survey of Canada.
[Ottawa, Ontario] : Geological Survey of Canada, 1986. 89 pp.

557 B340

This report provides detailed information on the distribution and taxonomy of palynomorphs (spores, pollen, algae, fungi, lichens) from a well in the southern Beaufort Sea, an area of continuing commercial interest for hydrocarbon exploration. The author describes, illustrates and documents the occurrences of the palynomorph species and assesses their stratigraphic and paleoecologic significance. The information presented in this document is intended for use in the regional evaluation of tertiary strata in Arctic Canada for hydrocarbon fuel potential, and in the correlation of sedimentary basins.

palynology / paleoecology / taxonomy / GSC / Beaufort Sea / stratigraphy / hydrocarbon reserves / Arctic

A 375 "Thermal Properties from Borehole Heating: Experience in the Canadian Beaufort Sea, 1984.
W.D. Harrison and J.L. Morack.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 13-14.

551.384 Wor

This summary of a paper presented at the subject workshop describes a Geological Survey of Canada (GSC) spring drilling program in the Beaufort Sea. A series of 22 sub-bottom boreholes was drilled northwest of Richards Island, and two of these holes were electrically heated and their temperature responses monitored. The results of this drilling program are noted here and test methods used for in situ subsea permafrost investigations are described.

workshops / GSC / Beaufort Sea / drilling / Richards Island, N.W.T. / permafrost

A 376 "Transient Electromagnetic Detection of Subsea Permafrost."
G.G. Walker, K. Kawasaki and T.E. Osterkamp.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 106-108.

551.384 Wor

This paper describes investigations into the occurrence and thickness of permafrost along a north-south transect of Alaska. Eleven sites were sounded using a transient electromagnetic system (eight of the sites were over sea ice). The procedures used in the investigations are described and results are summarized. A short list of references is included.

workshops / permafrost / Alaska / transient electromagnetic sounding / geophysics

A 377 "Tuktoyaktuk."
J.R. Mackay, H.M. French and J.A. Heginbottom.
In GUIDEBOOK TO PERMAFROST AND RELATED FEATURES OF THE NORTHERN YUKON TERRITORY AND MACKENZIE DELTA, CANADA.
edited by H.M. French and J.A. Heginbottom.
International Conference on Permafrost (4th : 1983 : Fairbanks) Guidebook ; 3.
Fairbanks, Alaska : State of Alaska. Division of Geological and Geophysical Surveys, Department of Natural Resources, 1983.
pp. 147-177.

551.384 Fre

Tuktoyaktuk, N.W.T., the main Inuit community in the western Arctic, is situated on a narrow, low peninsula jutting into Kugmallit Bay. The topography, permafrost conditions, and geomorphic processes relevant to the area are examined in this paper as well as the relationship between the geological characteristics of the area and the exploration for hydrocarbons in the Mackenzie Delta-Beaufort Sea region. There are many illustrations in this technical paper, written as background for an excursion to Tuktoyaktuk as part of the subject conference.

conferences / Tuktoyaktuk, N.W.T. / Tuktoyaktuk Peninsula, N.W.T. / Kugmallit Bay, N.W.T. / topography / permafrost / geomorphology / exploration / northern energy development / Mackenzie Delta, N.W.T. / Beaufort Sea / ice

A 378 VEGETATION OF KING POINT, PAULINE COVE AND BAILLIE ISLANDS.
Hardy Associates (1978) Limited.
Beaufort EIS Reference Works 1982.
Calgary, Alberta : Hardy Associates (1978) Ltd., 1979. 18 pp.

333.917 Har

Over the long term, harbours and shorebase requirements of Dome (for whom this report was prepared) and Canmar may grow as a result of increased drilling activities and the development of oil and gas reserves in the Beaufort Sea. This report provides a brief description of the vegetation at King Point, Harbour Lagoon, Pauline Cove, Baillie Islands and Cape Bathurst, which are potential sites for harbour development, with a view to ensuring that disturbance to the vegetation can be minimized through careful site selection. The vegetation descriptions provide data upon which preliminary assessment of the potential impacts of shore facilities can be made.

Dome / Canmar / northern energy development / Beaufort Sea / King Point, Yukon / Pauline Cove, Yukon / Baillie Island, N.W.T. / Cape Bathurst, N.W.T. / marine terminals / vegetation / EIS / environmental impact / tundra

A 379 "Velocity-Depth Structure of Offshore Permafrost, Canadian Beaufort Sea."
H.A. MacAulay, S.E. Pullan and J.A. Hunter.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 48-50.

551.384 Wor

Over the past decade the Geological Survey of Canada (GSC) has acquired thousands of oil company records relative to the Beaufort Sea. Many of these records indicate the presence of high-ice-content frozen sediments beneath the sea floor. This technical paper explains how the GSC is analyzing the records for present and future use in the study of offshore permafrost.

workshops / GSC / Beaufort Sea / permafrost / ice / sedimentation

A 380 WHITEHORSE FIELD PARTY, SEPTEMBER 1985.
R.G. Gilmore et al.
Calgary, Alberta : Petro-Canada, 1985. 2 vol.

553.28 Gil

Volume I of this set presents the report of a field party, from Petro-Canada, which conducted an investigation into the hydrocarbon potential of the Whitehorse Trough. The geology of the Whitehorse area is described and the results of tests on 96 rock samples, which were subjected to geochemical analyses, are discussed here. A bibliography is included and the volume is illustrated in colour. Volume II consists of ten maps which accompany the text of Volume I.

geology / geochemistry / hydrocarbon reserves / Whitehorse, Yukon / Petro-Canada

A 381 WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. 118 pp.

551.384 Wor

This volume contains abstracts and summary papers of presentations made at the subject workshop. Many of the papers are illustrated and several include lists of references. A list of workshop registrants is provided.

workshops / permafrost / geophysics / geology / ice, ground / ground temperature / technology

SOCIO-ECONOMIC ASPECTS

B 1 "Air Cushion Vehicle - A Positive Alternative."
R.P. Rawlyk.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 26-31.

380.5 Nor

This author, who represents the Kitikmeot Inuit Association, outlines the problems being experienced with the transportation system in the north, in terms of serving the social needs of the communities. The hidden costs involved in using the more traditional methods, such as cargo 'plane and barge, are discussed and the increased use of the air cushion vehicle, to more adequately respond to the economic and social needs of the northern communities, is recommended.

conferences / Inuit / transportation / transportation, air / transportation, marine / socio-economic aspects

B 2 ALASKA HIGHWAY GAS PIPELINE PROJECT: PIPELINE AND COMPRESSOR STATION CONSTRUCTION - CONSTRUCTION SCHEDULE, TYPICAL SPREAD REQUIREMENTS, MANPOWER REQUIREMENTS, TYPICAL JOB DESCRIPTION.
Foothills Pipe Lines (South Yukon) Ltd.
Whitehorse, Yukon : Foothills Pipe Lines (South Yukon) Ltd., n.d. various pag.

388.509 719 1 FPL(SY)

The construction schedule, workforce requirements and sample job descriptions, as projected for the Yukon section of the Alaska Highway Gas Pipeline (AHGP), by Foothills Pipe Lines (South Yukon) Limited (FPL(SY)), are included in this volume.

employment / AHGP / FPL(SY) / pipeline construction / Yukon Territory

B 3 THE ALASKA HIGHWAY GAS PIPELINE PROJECT. YUKON SEGMENT. INFORMATION, CONSULTATION AND LIAISON PLAN.
Foothills Pipe Lines (Yukon) Ltd.
s.l. : Foothills Pipe Lines (Yukon) Ltd., 1982. various pag.

388.509 719 1 FPL(Y)

This draft plan describes how Foothills Pipe Lines (Yukon) Ltd. (FPL(Y)) will implement the information, consultation and liaison commitments made to the National Energy Board (NEB) and to Lysyk Commission Inquiry into the Alaska Highway Gas Pipeline (AHGP). The intent of the plan is to provide a vehicle for communication between FPL(Y) and those individuals, governments, native organizations, special interest groups and communities most likely to be affected by the AHGP project in the Yukon.

FPL(Y) / Yukon Territory / communities / socio-economic aspects / NEB / AHGP / Lysyk Inquiry / government / native peoples / communications / pipelines

B 4 ALASKA HIGHWAY PIPELINE-FEDERAL/TERRITORIAL TASK FORCE ON SOCIO-ECONOMIC TERMS AND CONDITIONS: DRAFT II DISCUSSION PAPER.
Federal/Territorial Task Force on Socio-economic Terms and Conditions - Alaska Highway Pipeline.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1978. various pag.

330.971 91 CAN

This document sets out the terms and conditions to be met by Foothills Pipelines (Yukon) Ltd. (FPL(Y)) in presenting an information program for local communities on what a pipeline development entails. Opportunities associated with the development and problems related to the impact of a large scale project on local communities are emphasized. This material has been developed drawing on recommendations from the Berger and Lysyk reports on technology assessment, the National Energy Board (NEB), and the Alaska Highway Pipeline Panel.

socio-economic impacts / Berger Report / Lysyk Report / NEB / Alaska Highway Pipeline Panel / employment / pipeline construction / pipelines / AHGP / DIAND / FPL(Y)

B 5 "Alaska Native Hire on the Trans-Alaska Oil Pipeline Project."
Larry L. Naylor and Lawrence A. Gooding.
In ALASKA REVIEW OF SOCIAL AND ECONOMIC CONDITIONS, v. 15, no. 1, FEBRUARY 1978.
s.l. : University of Alaska. Institute of Social and Economic Research, 1978. 19 pp.

331.124 655 Nay

One of the most controversial local issues arising from construction of the trans-Alaska pipeline (1974-77) was the question of hiring native Alaskans. The Alaska Federation of Natives and the Alyeska Pipeline Service Company worked out a plan to ensure native employment. This article takes a look back at the extent to which Alaska natives were involved in the pipeline project. Five broad areas are examined - 1) the number of natives employed; 2) native population groups employed; 3) types and levels of jobs held; 4) training given to employees; and 5) time on the job and approximate amount of money earned.

Alyeska Pipeline Service Co. / Alaska / native peoples / pipeline construction / employment / TAPS / socio-economic impacts

B 6 ANALYSIS OF RANKINGS OF SOCIO-ECONOMIC IMPACTS OF THE NORMAN WELLS PIPELINE PROJECT.
M.B. Green and R.M. Bone.
[DIAND Norman Wells Monitoring Report No. 3-84.]
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 45 pp.

330.971 93 DIAND 3-84

The development of the Norman Wells oilfield by Esso Resources Limited, together with the construction of a pipeline by Interprovincial Pipelines, represented a major project in the Mackenzie Valley region. The Department of Indian Affairs and Northern Development (DIAND) was concerned that socio-economic impacts might occur in four communities located near the pipeline route (Norman Wells, Fort Norman, Wrigley and Fort Simpson) and initiated a monitoring program for these communities. Part of this program involved a single-question survey on the perceived positive and negative aspects of the project and the survey responses of 41 residents are the subject of this report.

Norman Wells, N.W.T. / Fort Norman, N.W.T. / Wrigley, N.W.T. / Fort Simpson, N.W.T. / socio-economic impacts / Esso / Interprovincial Pipelines / Mackenzie Valley, N.W.T. / communities / Norman Wells Pipeline / employment / native peoples / DIAND / surveys

B 7 AN ANALYSIS OF THE ECONOMIC FUNCTIONS IN THE FOUR STUDY COMMUNITIES IN 1982.
P.T. Bates.
[DIAND Norman Wells Monitoring Report No. 7-84.]
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 25 pp.

330.971 93 DIAND 7-84

Part of the Department of Indian Affairs and Northern Development's (DIAND) monitoring program on the socio-economic impacts of the Norman Wells oilfield expansion and pipeline project, this study investigates the economic functions of four communities along the pipeline route (Norman Wells, Fort Norman, Wrigley and Fort Simpson). "Economic functions" refers to the goods and services available from local sources in each community. As well, the historical development of the local economies is examined in terms of flow of goods and services and shopping expenditure patterns.

DIAND / socio-economic impacts / Norman Wells, N.W.T. / Norman Wells Pipeline / Fort Norman, N.W.T. / Wrigley, N.W.T. / Fort Simpson, N.W.T. / communities

B 8 ASSESSMENT OF SELECTED STATISTICAL DATA FROM THE GOVERNMENT OF THE NORTHWEST TERRITORIES.
Debra Brown.
[DIAND Norman Wells Monitoring Report No. 6-84.]
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 102 pp.

330.971 93 DIAND 6-84

This report is part of the Department of Indian Affairs and Northern Development's (DIAND) monitoring program designed to identify the impacts, positive and negative, of the Norman Wells oil field expansion and pipeline project on community situations "before", "during" and "after" project construction. The objective of this study is to assess the value of administrative records for research purposes associated with the socio-economic monitoring of the Norman Wells project. The chief value of administrative records is their capacity to present a longitudinal view of change and while this report focuses on the limitations of administrative data, it is noted that these records often provide the only information available on sensitive community issues.

DIAND / socio-economic impacts / Norman Wells, N.W.T. / Norman Wells Pipeline / government / native peoples / child care / health care / social services / alcohol / social problems

B 9 ATTITUDES TOWARDS THE NORMAN WELLS PROJECT.
Sheena Bates.
[DIAND Norman Wells Monitoring Report No. 2-84.]
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 19 pp.

330.971 93 DIAND 2-84

As part of the Department of Indian Affairs and Northern Development (DIAND) monitoring program on the socio-economic impacts of the Norman Wells oilfield expansion and pipeline project, business and household surveys were conducted among residents of four communities located near the pipeline route (Norman Wells, Fort Norman, Wrigley and Fort Simpson). This monitoring program analyzes the results of a survey to determine the major economic and social impacts of the Norman Wells project.

DIAND / socio-economic impacts / Norman Wells Pipeline / surveys / Norman Wells, N.W.T. / Fort Simpson, N.W.T. / Wrigley, N.W.T. / Fort Norman, N.W.T. / native peoples / employment / income and wages

B 10 BEAUFORT REGION CUMULATIVE MONITORING INDICATOR CATALOGUE.
Northwest Territories. Government. Energy, Mines and Resources Secretariat.
Yellowknife, N.W.T. : Northwest Territories. Government. Energy, Mines and Resources, 1986. 156 pp.

330.971 9 NWT

This document combines the results of two previous studies on the potential socio-economic impacts of hydrocarbon development in the Beaufort Region. The purpose of these studies was to identify data already being collected by various government departments which could be used as quantitative indicators for various socio-economic issues. This volume summarizes the results of the studies, identifying 122 indicators which are listed and examined. The main issues of note include demography, wage employment, prices and incomes, education, community control, family life, health, alcohol, public safety and housing.

Beaufort Sea / GNWT / northern energy development / socio-economic impacts / demography / employment / education / communities / social conditions / health care / alcohol / housing / safety measures / native peoples / native harvest / income and wages

B 11 BEAUFORT SEA CUMULATIVE MONITORING: POSSIBLE INDICATORS FOR SOCIOECONOMIC ISSUES.
Carol Anne Rolf.
s.l. : s.n., 1985. 105 pp.

330.971 9 Rol

This report was prepared for the Government of the Northwest Territories (GNWT) and was sponsored by the Northern Oil and Gas Action Program (NOGAP). Some expected socio-economic impacts of hydrocarbon development in the Beaufort Sea region are grouped into issues which reflect community concern. This report then identifies which impacts might serve as quantitative indicators - including demography, wage employment, education and renewable resource harvesting.

GNWT / NOGAP / socio-economic impacts / demography / employment / education / income and wages / native harvest / Beaufort Sea / Aklavik, N.W.T. / Arctic Red River, N.W.T. / Fort McPherson, N.W.T. / Inuvik, N.W.T. / Tuktoyaktuk, N.W.T. / Paulatuk, N.W.T. / Sachs Harbour, N.W.T.

B 12 BEAUFORT SEA-MACKENZIE DELTA ENVIRONMENTAL IMPACT STATEMENT: RESPONSE TO DEFICIENCIES, SOCIO-ECONOMIC ISSUES.
Dome Petroleum Ltd., Esso Resources Canada Ltd. and Gulf Canada Resources Inc.
Calgary, Alberta : Dome Petroleum Ltd., Esso Resources Canada Ltd. and Gulf Canada Resources Inc., 1983. various pag.

333.823 116 327 Dom

The Beaufort Sea Environment Assessment Panel (BSEAP), after reviewing the Environmental Impact Statement (EIS) for hydrocarbon development in the Beaufort Sea-Mackenzie Delta region, identified major deficiencies in the EIS in five categories - 1) assessment of socio-economic effects; 2) assessment of environmental effects; 3) oil spills ; 4) zone summaries; 5) further information requirements. This document responds to item 1) only and addresses, specifically, impact assessment methods and analyzes mitigation, monitoring, compensation and special concerns such as threats to native traditional lifestyles and culture.

BSEAP / EIS / Dome / Esso / Gulf / Beaufort Sea / Mackenzie Delta, N.W.T. / environmental assessment / socio-economic impacts / native peoples / employment / northern energy development / hydrocarbon production / exploration

B 13 CANADA/YUKON ECONOMIC DEVELOPMENT AGREEMENT: ASSESSMENT OF IMPORT SUBSTITUTION OPPORTUNITIES.
DPA Group Inc.
s.l. : Yukon. Department of Economic Development, Mines and Small Business, 1986. various pag.

338.097 191 DPA

In June 1984, the governments of Canada and Yukon signed the Canada/Yukon Economic Development Agreement, which outlined cooperative measures and joint objectives for achieving economic growth in Yukon. This study identifies opportunities aimed at overcoming one of the factors which constrain economic development - the minimal production of goods in Yukon (almost all capital and consumable goods are imported). The study stems from a public consultation workshop held in Whitehorse in the early part of 1985 which recommended that a study of import substitution opportunities be carried out.

government / Yukon Territory / YTG / Whitehorse, Yukon / socio-economic aspects / economic development agreement

B 14 CARING FOR CHILDREN: CHILD CARE NEEDS ASSOCIATED WITH HYDROCARBON DEVELOPMENT IN THE BEAUFORT REGION. A REPORT PREPARED FOR THE DEPARTMENT OF SOCIAL SERVICES, GOVERNMENT OF THE NORTHWEST TERRITORIES.
Diane Erickson and Suzanne Veit.
Victoria, British Columbia : Erickson Associates, 1985. 88 pp.

362.712 Eri

The Government of the Northwest Territories commissioned this study of child care needs as part of a broad research and planning program to prepare for increased hydrocarbon development in the Beaufort region. The study examines three communities - Aklavik, Inuvik and Tuktoyaktuk. An assessment of child care arrangements and resources used by people working in jobs associated with the oil industry is presented as well as potential solutions to child care problems. The authors include recommendations for a day care strategy and for a needs assessment study for further planning in the area of child care in the Northwest Territories.

GNWT / child care / child development / socio-economic aspects / native peoples / social conditions / social services / Inuvik, N.W.T. / Tuktoyaktuk, N.W.T. / Aklavik, N.W.T. / northern energy development / Beaufort Sea / NOGAP

B 15 CHANGES IN THE SIZE OF THE NATIVE LABOUR FORCE FROM 1982 TO 1983.
Sheena Bates.
[DIAND Norman Wells Monitoring Report No. 4-84.]
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 43 pp.

330.971 93 DIAND 4-84

The Norman Wells expansion project consists of the growth of oil development and attendant pipeline construction. The socio-economic impact of this development on four communities along the pipeline route - Norman Wells, Fort Norman, Fort Simpson and Wrigley - is the topic of a monitoring program initiated by the Department of Indian Affairs and Northern Development (DIAND). The subject report is part of this DIAND monitoring program and it studies the influence of Norman Wells project activities on the labour force of each of these communities. Labour force characteristics are presented in four categories - total active labour force, full- and part-time workers; government and private industry and by industrial division - and the data are analyzed and conclusions presented.

Norman Wells Pipeline / Norman Wells, N.W.T. / socio-economic impacts / Fort Norman, N.W.T. / Fort Simpson, N.W.T. / Wrigley, N.W.T. / employment

B 16 CHEMICAL RESIDUES IN FISH AND WILDLIFE SPECIES HARVESTED IN NORTHERN CANADA.
Michael P. Wong.
s.l. : Canada. Department of Indian Affairs and Northern Development, 1985. various pag.

363.738 4 Won

This unpublished manuscript was prepared for the Environmental Studies Program, Northern Environment Directorate, Department of Indian Affairs and Northern Development (DIAND). The study presents information on native peoples' diets, with a focus on the species consumed, portions consumed and method of preparation, for the purpose of evaluating the magnitude of chemical exposure. Human health studies conducted in Greenland are examined and there are reports on contaminant levels in Canadian game birds, Arctic terrestrial and marine mammals, and fish. As well, the results of medical testing of northern native populations are summarized and lists of references and contact people are provided.

environmental impact / DIAND / native peoples / public health / health care / Greenland / toxicology / pollution, industrial / native harvest / socio-economic impacts / nutrition / fish / mammals / mammals, marine / birds / waterfowl / bears, polar / Arctic / fur-bearers

B 17 CONNECTIONS: AN ENERGY STRATEGY FOR THE FUTURE.
Canada. Economic Council of Canada.
s.l. : Canada. Economic Council of Canada, 1985. 207 pp.

333.713 Eco

The Economic Council of Canada has a broad mandate to analyze and advise on national and regional economic issues. This report arose from the Council's belief that there is a need to examine, in greater detail, the economic, political and strategic issues that surround the making of energy policy. The study is national in scope and deals with the above aspects of different forms of energy, such as electricity and other alternative sources, in addition to oil and gas.

Economic Council of Canada / NEP / socio-economic aspects / energy alternatives / energy policy / government / natural gas / hydrocarbon production / electricity

B 18 THE DENE THA' BAND: A CASE STUDY IN THE LOCAL DEVELOPMENT IMPLICATIONS OF THE NORMAN WELLS PIPELINE.
RMC Resources Management Consultants (Alberta) Ltd.
Edmonton, Alberta : RMC Resources Management Consultants (Alberta) Ltd., 1984. 22 pp.

330.971 92 RMC

Presented to Interprovincial Pipeline (NW) Ltd., this report documents the development of Dene Tha' Construction Ltd., a general contracting firm privately owned by the Dene Tha' Band. The people of the Band were determined to be involved in pipeline development in northwestern Alberta and this determination led to the establishment of the construction company. The report evaluates the development process involving Dene Tha' Construction Ltd. and Interprovincial Pipelines (NW) Ltd. in connection with the construction of the Norman Wells pipeline. As well, the broader implications in terms of overall socio-economic development for the Dene Tha' population are examined.

Dene Tha' / native peoples / Interprovincial Pipelines / Alberta / Norman Wells, N.W.T. / pipelines / employment / socio-economic impacts / demography / construction

B 19 AN ECONOMIC ANALYSIS OF HYDROCARBON DEVELOPMENTS IN THE BEAUFORT SEA.
Peter Eglington and Maris Uffelman.
Economic Council of Canada Discussion Paper No. 258.
Ottawa, Ontario : Economic Council of Canada, 1984. 94 pp.

333.823 1 Egl

This paper provides an economic evaluation of some possible development scenarios for hydrocarbon production in the Beaufort Sea. The study was carried out with the assistance of two Beaufort operating companies, Gulf Canada Resources Inc. and Dome Petroleum Ltd. Three topics are addressed in this paper: 1) the approximate minimum oil reserve size, or minimum economic scale, that would allow development of a discovery to be economically viable; 2) the potential for relatively low cost oil from the Beaufort Sea; and 3) the feasibility, estimated through cash flow analysis of a number of previous example oil developments, of future developments based on the present fiscal regime.

Beaufort Sea / hydrocarbon production / Gulf / Dome / socio-economic aspects / financing / royalties / exploration / taxation / hydrocarbon reserves

B 20 "Effects of Petroleum Activities on the Ecology of Arctic Man."
M.M.R. Freeman.
In PETROLEUM EFFECTS IN THE ARCTIC ENVIRONMENT.
edited by F.R. Engelhardt.
London, England : Elsevier Applied Science Publishers Ltd., 1985.
pp. 245-273.

363.738 2 Pet

This author discusses the dependence of northern indigenous peoples on the living resources of the regions they occupy. The author outlines the nature and significance of this dependence and explains why, despite an increasing pace of modernization throughout all regions of the north, these northern populations continue to stress the importance of renewable resource harvesting to their present and future circumstances. The effects of petroleum activities are discussed, not only from the aspect of pollution but with respect to the impact of disturbance on the environment and on the daily lives of these northern residents. A list of references is provided.

socio-economic impacts / northern energy development / environmental impact / native peoples / native harvest / fishing / hunting / whales / pollution, oil / pollution, noise / ecology / Arctic

B 21 THE EFFECTS OF ROTATIONAL WAGE EMPLOYMENT ON WORKERS AND THEIR FAMILIES IN THE BEAUFORT SEA-MACKENZIE DELTA AREA: AN ANNOTATED BIBLIOGRAPHY, INDICATORS, EMPLOYMENT DATA AND RECOMMENDATIONS FOR FUTURE RESEARCH.
Government of the Northwest Territories: Department of Social Services.
Yellowknife, N.W.T. : Government of the Northwest Territories, 1986.
66 pp.

333.823 1 NWTe

Rotational wage employment is defined as employment in which the work place is so distant from the workers' homes that food and lodging accommodations are provided at the work site, and employees spend a fixed number of days working at the site then a fixed number of rest days at home. This study, funded by the Northern Oil and Gas Action Program (NOGAP) provides a list of current research on the topic of rotation and its effect on workers and their families. The need for further research relevant to the Beaufort Sea-Mackenzie Delta area is identified. A major portion of this volume consists of an annotated bibliography of literature relevant to the rotation study.

NOGAP / employment / socio-economic impacts / bibliographies & indices / Beaufort Sea / Mackenzie Delta, N.W.T. / social conditions / native peoples / oil companies / GNWT

B 22 "Esso's Norman Wells Project."
J.W. Deyell.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. B30-B37.

333.823 05 Arc 1985

This paper provides a brief overview of the regulatory process and environmental, engineering, construction and drilling aspects of Esso's Norman Wells Project. The main focus of the paper, however, is the socio-economic aspects of the project and, specifically, Esso's relationship with the regulatory bodies throughout the execution phase of the project. The work at Norman Wells involves two projects - an oil field development project by Esso and a pipeline project by Interprovincial Pipelines. Part of the oil reservoir, located directly under the Mackenzie River, has previously been unaccessible from the land and this project sees the development of that portion of the reservoir by installing a field-wide pattern water flood.

Norman Wells, N.W.T. / Esso / Mackenzie River / regulatory agencies / socio-economic aspects / hydrocarbon production / drilling / pipelines / employment / government / DIAND / northern energy development / engineering / environmental impact / Interprovincial Pipelines / workshops / APOA / CPA-OOD

B 23 ESTABLISHMENT OF EXISTING SOCIO-ECONOMIC CONDITIONS.
M.B. Green and R.M. Bone.
[DIAND Norman Wells Monitoring Report No. 5-84.]
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 19 pp.

330.971 93 DIAND 5-84

Part of the Department of Indian Affairs and Northern Development's (DIAND) monitoring program on the socio-economic impacts of the Norman Wells oilfield expansion and pipeline project, this study proposes and exemplifies a principal components approach to the creation of socio-economic indices to help monitor change. Components considered include family structure, age, income and employment in the communities of Norman Wells, Fort Norman, Wrigley and Fort Simpson.

DIAND / socio-economic impacts / Norman Wells Pipeline / Norman Wells, N.W.T. / Fort Norman, N.W.T. / Fort Simpson, N.W.T. / Wrigley, N.W.T. / employment / income and wages / native peoples

B 24 AN EVALUATION OF NATIVE HARVEST SURVEY METHODOLOGIES IN NORTHERN CANADA.
Peter J. Usher et al.
Environmental Studies Revolving Funds Report No. 004.
Ottawa, Ontario : P.J. Usher Consulting Services, 1985. 249 pp.

639.108 997 Ush

Sponsored by the Environmental Studies Revolving Funds (ESRF), this study evaluates the methodologies employed in counting and estimating native harvests. Native harvest statistics are counts, or estimates, of the numbers of each species of fish and wildlife taken over a specified time, in a specified area, by a particular group of native people. The primary geographic focus of the study is the Northwest Territories. The usefulness of existing statistical data, for oil and gas related purposes, is assessed and recommendations for improvements in terms of future data collection, management, analysis, and standardization of methodology are made. A list of references is provided.

ESRF / native peoples / hunting / fishing / native harvest / Northwest Territories / northern energy development

B 25 FAMILY LIFE ADAPTATIONS TO OFFSHORE OIL AND GAS DEVELOPMENT.
Keith Storey et al.
Environmental Studies Revolving Funds Report No. 040.
Ottawa, Ontario : Community Resource Services (1984) Ltd., 1986.
207 pp.

362.82 Sto

This study, funded through the Environmental Studies Revolving Funds (ESRF), documents the responses of families living in Newfoundland to a survey about the rotational patterns of work associated with offshore oil and gas employment. Based on the reactions of families, and the adjustments they make due to this way of life, recommendations are offered in an attempt to alleviate a number of problems identified in areas such as partings and reunions, mood changes and other selected behavioral patterns. An annotated bibliography entitled the "Intermittent Spouse" is included and the questionnaires used in the survey are reproduced.

ESRF / Newfoundland / socio-economic impacts / employment / income and wages / bibliographies & indices / communications

B 26 HUMAN RESOURCES DEVELOPMENT. FINAL REPORT. SUMMARY VOLUME (VOLUME 1).
Joint Needs Assessment Committee.
Yellowknife, N.W.T. : Joint Needs Assessment Committee, 1983.
121 pp.

331.120 42 JNAC

The Joint Needs Assessment Committee, which was established in 1982 following the 1981 approval of the Norman Wells oil field development and pipeline project, is comprised of members from the Government of the Northwest Territories (GNWT) and representatives from the Dene Nation and Metis populations. The committee's role is to ensure that northern residents, through education and training, are able to participate in and benefit from the Norman Wells project. This final report presents the results of several studies conducted to examine and assess the training programs and economic development potential of Esso's expansion project at Norman Wells. As well, the report makes recommendations concerning future training programs, social programs, adult education facilities, the government's role in employment and training, and the continuance of the Joint Needs Assessment Committee in order to monitor and assess the implementation of these recommendations.

Norman Wells, N.W.T. / Esso / training / employment / socio-economic aspects / education / Dene Nation / native peoples / GNWT / social services

B 27 THE IMPACT OF BEAUFORT SEA EXPLORATION ACTIVITIES ON G.N.W.T. PROGRAMS, SERVICES, FACILITIES AND STAFF: THE INUVIK REGION'S EXPERIENCE WITH TUKTOYAKTUK, 1976-1983. GOVERNMENT OF THE NORTHWEST TERRITORIES: SUBMISSION TO THE BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL 1983.
s.l. : s.n., 1983. 83 pp.

333.823 15 GNWT v. 9

With reference to Tuktoyaktuk, this paper summarizes the experience that has been gained by the Government of the Northwest Territories' (GNWT) Inuvik office and staff, at the community level, relative to the socio-economic impacts of hydrocarbon exploration activities in the region. A brief chronological overview of the oil industry's work at Tuktoyaktuk is given, beginning with Imperial Oil in 1979.

Tuktoyaktuk, N.W.T. / Inuvik, N.W.T. / GNWT / BSEAP / socio-economic impacts / social problems / alcohol / crime / housing / recreation / education / income and wages / employment / Dome / Canmar / native peoples / Beaufort Sea

B 28 IMPACT OF PROJECT ON ECONOMIC BASE OF NORMAN WELLS, FORT NORMAN, WRIGLEY AND FORT SIMPSON.
P.T. Bates.
[DIAND Norman Wells Monitoring Report No. 8-84.]
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 33 pp.

330.971 93 DIAND 8-84

This report focuses on the impact of the Norman Wells Pipeline project on the economic base of four communities located along the pipeline route. Part of a comprehensive Department of Indian Affairs and Northern Development (DIAND) Monitoring program, this research takes the form of case studies on Norman Wells, Fort Norman, Wrigley and Fort Simpson. An inventory of all the businesses (public and private) in each of the four study communities is provided as well as information on services and shopping expenditure patterns. Industrial sector employment for the years 1981, 1982 and 1983 are compared, with a view to determining whether 1982 (before the project started) was representative of pre-boom conditions.

Norman Wells Pipeline / pipeline routes / DIAND / socio-economic impacts / Norman Wells, N.W.T. / Fort Norman, N.W.T. / Fort Simpson, N.W.T. / Wrigley, N.W.T. / employment

B 29 "Industry/Community/Government Relations in Energy Resource Areas."
Preston Manning.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 38-43.

333.823 05 Arc 1984

The personal experiences of the author of this paper are drawn from Alberta. Three aspects of energy industry/community relations in Northern Alberta are discussed: corporate efforts to relate more positively to native communities; corporate efforts to improve understanding of the problems and skills involved in cross-cultural communications; and the impact of politics and government on industry/community relations. With the use of a diagram and various tables, the speaker addresses these topics and suggests steps that may be taken to alleviate some unsatisfactory situations which have arisen.

Alberta / northern energy development / community development / communications / socio-economic aspects / native peoples / communities / oil companies / workshops / CPA-OOD / APOA

B 30 "Inuvialuit Land Administration."
G. Dobbyn.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. A64-A69.

333.823 05 Arc 1985

The basic structure of the Inuvialuit Land Administration is outlined in this paper. In a step-by-step manner, the procedures process for review and approval of applications, from people requiring access to Inuvialuit land, is presented.

Inuvialuit / land management / land use / land claims / COPE / regulatory agencies / regulations / Inuvialuit Land Administration / workshops / CPA-OOD / APOA

B 31 "A Land Settlement - What Does it Mean?"
James Wah-Shee.
In GAS FROM THE MACKENZIE DELTA: NOW OR LATER? MAY 23-24, 1974 CONFERENCE [PAPERS].
Canadian Arctic Resources Committee (CARC).
Ottawa, Ontario : Canadian Arctic Resources Committee, 1974.
pp. 83-92.

330.971 Gas

The author of this paper is the President of the Northwest Territories Indian Brotherhood. Considerable public attention has been directed towards the question of land settlement, largely because of developments proposed for the north - the homelands of many of the native peoples of Canada. It is emphasized in this presentation that the native peoples of the Northwest Territories (NWT) are committed and determined to have a fair land settlement which will provide self-protection and survival as a cultural entity, in face of changes likely to occur in the NWT. A look at the historical background of land settlement is provided and the author examines the current situation, the desires of the native peoples, and possible solutions to the issue.

conferences / CARC / Northwest Territories / land settlement / native peoples / land claims / government / northern energy development / socio-economic aspects

B 32 MANPOWER PLAN - THE ALASKA HIGHWAY [GAS] PIPELINE PROJECT DRAFT: SECTION 1: CONSTRUCTION AND PRE-BUILD PORTION.
[Foothills Pipe Lines Ltd.]
s.l. : s.n., [1979]. various pag.

331.124 655 FPL Sect. 1

The Foothills Pipe Lines Ltd. (FPL) workforce requirements and draft implementation plan for the construction and pre-build portion of the Alaska Highway Gas Pipeline (AHGP) are detailed in this volume. The plan is divided into the following sections: 1) recruiting procedures and local hire; 2) affirmative action; 3) employment and training information; 4) training; 5) mobility; 6) reporting systems; and 7) workforce supply and requirements.

FPL / AHGP / employment / training / socio-economic aspects

B 33 MANPOWER PLAN - THE ALASKA HIGHWAY PIPELINE PROJECT DRAFT: APPENDIX II MANPOWER SUPPLY - ALL PORTIONS CONSTRUCTION PHASE.
Lorcan Co. Ltd.
Calgary, Alberta : Lorcan Co. Ltd., 1979. 57 pp.

331.124 655 FPL App. II

Prepared for Foothills Pipe Lines Ltd. (FPL) this study identifies the supply and source of manpower available for the construction of the Alaska Highway Gas Pipeline (AHGP) project. It is noted that most of the construction manpower complement will be engaged in pipeline construction, compressor and meter station construction.

AHGP / pipeline construction / employment / FPL / socio-economic aspects

B 34 MANPOWER PLAN - THE ALASKA HIGHWAY PIPELINE PROJECT DRAFT: APPENDIX III: MANPOWER REQUIREMENTS - ALL PORTIONS CONSTRUCTION PHASE.
[Foothills Pipe Lines Ltd.]
s.l. : s.n., [1979]. n.p.

331.124 655 FPL App. III

This volume consists of a comprehensive compilation of workforce requirements for the various occupation classifications involved in the construction of the Alaska Highway Gas Pipeline (AHGP) project. The information is based on a schedule which contemplates the construction of the pre-build portion in 1980 and 1981 and the construction of the Yukon portion, and the balance south of 60° portion, in subsequent years. Most of the data are presented in tabular format.

AHGP / pipeline construction / FPL / Yukon Territory / employment / socio-economic aspects

B 35 1981 SOCIAL, ECONOMIC, CULTURAL: BEAUFORT SEA PROJECT. [NORTHERN PARTICIPATION IN THE BEAUFORT SEA OIL AND GAS EXPLORATION, PRODUCTION AND DEVELOPMENT] [DRAFT].
Dome Petroleum Limited/Canmar.
s.l. : Dome Petroleum Limited, 1981. 21 pp.

330.971 Dome

This draft document highlights Dome's view of its social and environmental responsibility to the residents, communities, and local governments of the north, in light of the company's oil and gas exploration activities in the Beaufort Sea. Dome's corporate policies are presented here, followed by a statement of its programs and practices with regard to northern involvement in the Beaufort Sea Project. Dome states its commitment for local participation in six main areas - community consultation, employment, training and development, economic development, social and cultural support, and northern participation in future Beaufort Sea development.

Dome / Canmar / socio-economic aspects / environmental impact / communities / government / exploration / Beaufort Sea / employment / training / Beaufort Sea Project

B 36 NORTHERN EMPLOYMENT AND TRAINING IN THE OIL AND GAS INDUSTRY.
DPA Group, Inc. and Intergroup Consulting Economists Ltd.
Environmental Studies Revolving Funds Report No. 024.
Ottawa, Ontario : The DPA Group, Inc., 1986. 105 pp.

331.762 218 282 DPA

Commissioned by the Social Issues North Committee of the Environmental Studies Revolving Funds (ESRF), this study determines the key factors which would enhance or inhibit the abilities of oil and gas companies in northern Canada to train and employ northern residents. The study also presents practical recommendations on strategies that would improve the nature and extent of northern participation in northern oil and gas activities. The intent is to provide better industry/government communications and employment policies, while recognizing regional differences in labour force characteristics and employment opportunities. A list of references is included.

ESRF / employment / oil companies / northern energy development / training / GNWT / government / COGLA / Canadian content / socio-economic aspects / native peoples / CEIC / YTG

B 37 NORTHERN OIL AND GAS DEVELOPMENT - OPPORTUNITIES AND RESPONSIBILITIES - WORKSHOP [PROCEEDINGS], YELLOWKNIFE, N.W.T., MAY 25-28, 1982.
edited by Diana Parnell and Marilyn Hope.
Calgary, Alberta : Canadian Petroleum Association (CPA), 1982.
160 pp.

330.971 9 Nort

These proceedings of the subject workshop include texts of presentations given, and the reports and recommendations of the workshop session chairmen. The speakers represent major northern petroleum operators, government and northern business people on one central theme - to maximize employment and business opportunities for northerners. A list of workshop participants is provided.

workshops / hydrocarbon production / exploration / Yukon Territory / Northwest Territories / government / oil companies / employment / Canadian content / training / CPA

B 38 OIL AND AMULETS. INUIT: A PEOPLE UNITED AT THE TOP OF THE WORLD.
Philip Lauritzen.
edited by R.E. Buehler.
Arctic and Northern Life Series.
s.l. : Breakwater Books Ltd., 1983. 274 pp.

971.9 Lau

This book records the coming together of the Inuit of the United States (Alaska), Canada and Greenland. The purpose of this meeting, held at Barrow, Alaska in 1977, was to lay down the foundation for an inter-arctic organization of the entire Inuit population. A summary of the view-points of the Inuit people is presented. Concern is expressed over the survival of their culture, the Arctic environment, and traditions in the face of the increased development activities in the north by the southern industrial society.

Inuit / Greenland / Barrow, Alaska / history / socio-economic impacts / native peoples / northern energy development / environmental protection / Arctic

B 39 AN OVERVIEW OF POTENTIAL IMPACTS OF GAS PIPELINE CONSTRUCTION AND OPERATION ON USE AND VALUE OF YUKON FISHERIES.
P. Eby and Associates Limited.
Vancouver, British Columbia : P. Eby and Associates Limited, 1977. various pag.

333.956 1 Peb

The fish resources of the Yukon Territory support a small local commercial fishery and contribute to a much larger commercial fishery in Alaska. By providing sport fishing opportunities for visitors, fish resources contribute to the Yukon's tourist industry, they provide recreational opportunities and support a subsistence fishery of both cultural and economic significance to native peoples. This report, prepared for the Department of Fisheries and Environment (DFO, DOE), provides a preliminary overview of the socio-economic effects on Yukon fisheries, which may result from construction and operation of the proposed Foothills Pipelines (Yukon) Ltd. (FPL(Y)) gas pipeline. A bibliography is included.

Yukon Territory / fisheries / fishing / tourism / pipelines / FPL(Y) / socio-economic impacts / recreation / native peoples / employment / DFO / DOE / pipeline construction

B 40 AN OVERVIEW OF PSYCHO-SOCIAL IMPACTS OF RESOURCE DEVELOPMENT IN THE NORTHWEST TERRITORIES.
Blair Dunbar.
[Yellowknife, N.W.T.] : Northwest Territories. Department of Social Services, 1983. 16 pp.

333.823 15 Dun

This report is a Government of the Northwest Territories (GNWT) submission to the Beaufort Sea Environmental Assessment Panel (BSEAP). The GNWT is committed to ensuring that changes in the lifestyles of northern residents, brought about by hydrocarbon exploration and development, are managed for the benefit of the people who are affected. The emphasis is on maximizing the positive aspects of change and minimizing the negative aspects. Adequate social services, health care, policy protection, education, housing, transportation and communication services are identified as necessary components in ensuring expected changes are dealt with effectively by the communities concerned.

GNWT / BSEAP / socio-economic impacts / native peoples / social services / health care / protective services / education / housing / transportation / communications / communities / oil companies / government

B 41 PRELIMINARY INVESTIGATION OF THE SOCIAL IMPACT OF THE ALASKA HIGHWAY ON YUKON INDIANS: PROBABLE PARALLELS TO THE IMPACT OF PIPELINE CONSTRUCTION.

Julie Cruikshank and Catharine McClellan.
s.l. : s.n., n.d. n.p.

330.971 Cru

The authors of this paper argue that similar negative impacts on the native peoples of southern Yukon, occasioned by the construction of the Alaska Highway, will occur if a gas pipeline is built through the same region. The Alaska Highway was built by a large imported labour force, extremely rapidly, with some short term jobs for native peoples. By the time the construction-related boom had ended, major changes had occurred in the lives of the people who lived near the highway route - changes in their traditional annual cycle, settlement patterns, sources of subsistence and cash income, social organization, health conditions and alcohol use. These changes are discussed and the authors' views on disturbing parallels between the known consequences of the building of the Alaska Highway and the possible consequences of building a gas pipeline are emphasized.

native peoples / socio-economic impacts / Yukon Territory, Southwest / Alaska Highway / AHGP / employment / road construction / income and wages / health care / alcohol / hunting / fishing / trapping

B 42 PRELIMINARY PLANNING FOR THE IMPLEMENTATION OF COMPREHENSIVE LAND USE PLANNING IN THE YUKON AND NORTHWEST TERRITORIES.
DPA Consulting Ltd.
s.l. : s.n., 1981. 42 pp.

350.713 2 DPA

This report, which was commissioned by the Department of Indian Affairs and Northern Development (DIAND), recommends an organizational and operational approach towards the establishment of comprehensive land use planning in northern Canada.

DIAND / land use / regional planning / Yukon Territory / Northwest Territories / socio-economic aspects

B 43 SOCIAL AND ECONOMIC ASPECTS OF DOME/CANMAR'S BEAUFORT SEA PROJECT, 1977.
Mary Collins Consultants Ltd.
Calgary, Alberta : Mary Collins Consultants Ltd., 1977. 109 pp.

333.823 1 Mar 1977

Prepared for Dome Petroleum's subsidiary, Canadian Marine Drilling Limited (Canmar), this report presents a review of Canmar's 1977 drilling operations in the Beaufort Sea. The main focus of the report, however, is an assessment of the manner in which Canmar implemented the terms and conditions of its socio-economic impact commitments. The author considers the demography of the area, economic factors connected to Canmar's activities, and social and cultural aspects. Suggestions concerning future employment and training and potential further socio-economic impacts are outlined.

Canmar / Beaufort Sea / socio-economic impacts / native peoples / employment / training / demography / income and wages / communications / Dome / Tuktoyaktuk, N.W.T. / Aklavik, N.W.T. / Inuvik, N.W.T. / Coppermine, N.W.T. / Holman Island, N.W.T. / Sachs Harbour, N.W.T. / Paulatuk, N.W.T. / hunting

B 44 "Social and Economic Conditions in Frontier Areas: Business Development."
Don McWatt.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 10-13.

333.823 05 Arc 1984

Small business development in the Beaufort area is the subject of this paper. The author, who represents Beaufort Environmental Support Services, begins by giving some background information on the progress of small business ventures as northern energy development took place. With a very practical emphasis, this paper presents advice and encouragement to people considering a business venture in the Northwest Territories.

Beaufort Sea / Aklavik, N.W.T. / Northwest Territories / business / marketing / Mackenzie Valley, N.W.T. / financing / hydrocarbon production / socio-economic aspects / workshops / CPA-OOD / APOA

B 45 "Social and Economic Conditions in Frontier Areas: Business Development."
Rick Hardy.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 13-14.

333.823 05 Arc 1984

The author of this paper speaks on behalf of the Metis Development Corporation. The background of the establishment of the corporation, which was formed with the intention of reaping any benefits which might accrue from the then proposed Mackenzie Valley pipeline, is outlined. The ownership of the Corporation was removed from the political Metis Association and was put directly into the control of native communities in the Northwest Territories. The paper gives an overview of the corporation's activities, which are mainly in the land holding and property development areas. The author expresses concern over the interpretation of some government regulations, regarding benefits to northerners, and abuse of certain regulations by some members of the industrial community.

Northwest Territories / socio-economic aspects / native peoples / business / Mackenzie Valley, N.W.T. / communities / land management / government / regulations / community development / northern energy development / oil companies / native development corporations / workshops / CPA-OOD / APOA

B 46 "Social and Economic Conditions in Frontier Areas: Employment Training."
Martha Hynna.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 23-26.

333.823 05 Arc 1984

The role of the Canada Employment and Immigration Commission (CEIC), as it relates to exploration and development of petroleum resources on Canada lands, is explained in this paper. Specifically, the CEIC's three employment objectives in this area are defined - to maximize employment opportunities generally and for regional labour forces in particular; to increase the level or transfer of skills by the provision of training and development; to ensure that socially and economically disadvantaged groups or individuals have fair and equitable opportunities. The speaker outlines a number of CEIC programs designed to meet the third objective in particular. Funding for programs is outlined as are the affirmative action measures presently in place.

training / employment / native peoples / northern energy development / socio-economic aspects / government / CEIC / workshops / CPA-OOD / APOA

B 47 "Social and Economic Considerations in Frontier Areas: Business Development."
Cam Mackie.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 14-16.

333.823 05 Arc 1984

As Federal Co-ordinator for the Native Economic Development Program, this speaker addresses the government position with regard to native business development in the north and across Canada. The high rate of change in the nature of business development is discussed and the federal government's role in responding to these changes, by providing programs such as the Native Economic Development Program, is explained. The increase of economic self-reliance, promotion of culturally appropriate economic development and community involvement are the stated missions of the program. The author concludes by emphasizing the importance of ensuring that native peoples have access to the wide range of federal government programs available in this field.

socio-economic aspects / business / native peoples / government / financing / communities / northern energy development / Native Economic Development Program / workshops / CPA-OOD / APOA

B 48 "Social and Economic Considerations in Frontier Areas: Community Interface: Inuvik."
Suzie Huskey.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 37-38.

333.823 05 Arc 1984

This brief paper discusses the effects of Dome's operations in the Beaufort Sea, with specific reference to Inuvik's experiences. The speaker reviews the objections which were raised to Dome's plans to drill in the Beaufort Sea, as well as the general concerns felt by the people living in the area. In concluding, the speaker emphasizes the need for training for native workers and expresses her opinion that the social changes which took place were not altogether negative ones.

Inuvik, N.W.T. / employment / Dome / Beaufort Sea / northern energy development / native peoples / training / socio-economic impacts / environmental impact / alcohol / social problems / drilling, offshore / communities / workshops / CPA-OOD / APOA

B 49 "Social and Economic Considerations in Frontier Areas: Equity Participation/Joint Ventures."
Peter Coolican.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp 6-9.

333.823 05 Arc 1984

This author provides a review of the background of the Inuvialuit Development Corporation (IDC), which is a product of the land rights settlement between the federal government and the Inuvialuit. The main concept behind the IDC is to keep the assets of the Inuvialuit people together in corporations that are community owned and controlled. The organizational set-up of the IDC is explained and a review of some of its investments is included. The paper concludes with a general overview of the goals and long term projections for the IDC and the community.

Beaufort Sea / socio-economic aspects / communities / hydrocarbon production / land claims / Inuvialuit Development Corporation / business / community development / native development corporations / workshops / CPA-OOD / APOA

B 50 "Social and Economic Considerations in Frontier Areas: Northern Employment."
Mel Benson.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 33-34.

333.823 05 Arc 1984

In this short paper, Esso's policy to ensure that northern residents have opportunities for employment, as a result of the Norman Wells project and Beaufort activities, is discussed. The Norman Wells project involves oil fields development and a pipeline project by Interprovincial Pipelines, and the employment potential of that development is the main focus of the presentation. The speaker outlines the various actions and programs undertaken by Esso, including the role played by transportation and work schedules which were established with a view to allowing employees to spend as much time as possible in their own communities.

northern energy development / socio-economic aspects / employment / communities / native peoples / Norman Wells, N.W.T. / Esso / Interprovincial Pipelines / Beaufort Sea / social conditions / workshops / CPA-OOD / APOA

B 51 "Social and Economic Considerations in Frontier Areas: The Petroleum Industry Training Service."
Les Evans.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 27-30.

333.823 05 Arc 1984

A short examination of the structure and role of the Petroleum Industry Training Service (PITS), which is the training arm of the petroleum industry in Canada, begins this paper. The speaker then discusses the development and presentation of training programs for industry and summarizes the content of several of these programs. The summaries show that considerable emphasis is placed on practical training on-site at various drilling and other frontier locations.

training / employment / drilling, offshore / safety measures / Arctic / wells / drillships / blowouts / oil rigs / Inuvik, N.W.T. / socio-economic aspects / workshops / CPA-OOD / APOA

B 52 SOCIAL MONITORING OF CUMULATIVE IMPACTS IN THE BEAUFORT/DELTA AREA: A COMPREHENSIVE CRITIQUE OF AVAILABLE INDICATORS AND AN INTRODUCTION TO COMMUNITY ISSUES.
Government of the Northwest Territories. Department of Social Services.
Inuvik, N.W.T. : Government of the Northwest Territories. Department of Social Services, 1985. 254 pp.

333.823 1 NWTs

Funded by the Northern Oil and Gas Action Program (NOGAP), this document examines the issues and indicators currently available that may assist in the assessment and monitoring of the impacts of the hydrocarbon industry on the Beaufort/Delta communities. As part of a larger project to monitor and assess the changing social needs of people in the area, this particular report identifies and critiques the issues and indicators. In essence, this is a report on the data researchers were able to obtain with a view to establishing a data base system to provide baseline data from which changes and trends can be identified. A short list of references is included.

NOGAP / Beaufort Sea / Mackenzie Delta, N.W.T. / GNWT / housing / socio-economic impacts / social conditions / social problems / native peoples / crime / social services / data bases / education / health care / employment

B 53 SOCIO-ECONOMIC IMPACT ASSESSMENT OF INDUSTRIAL DEVELOPMENT ON YUKON'S NORTH COAST.
DPA Group Inc.
Calgary, Alberta : DPA Group Inc., 1985. 119 pp.

330.971 91 DPA

Prepared for the Yukon Department of Economic Development, this study assesses the relative positive and negative effects of two potential port developments, on the North Coast of Yukon, in support of offshore oil and gas exploration and production activities. The suggested location for both potential developments is King Point, Yukon. The first alternative is a port and rock quarry facility and the second is a multi-user port development. This study assesses Yukon economic impacts, government financial impacts and social impacts. A comprehensive bibliography is provided.

socio-economic impacts / financing / government / Yukon Territory, Northern / King Point, Yukon / marine support base / marine terminals / Old Crow, Yukon / native peoples / northern energy development / employment

B 54 SOCIO-ECONOMIC IMPORTANCE OF MARINE WILDLIFE UTILIZATION.
W.D. Bracknell.
Canada. Department of Fisheries and Oceans. Beaufort Sea Project. Beaufort Sea Project Technical Report No. 32.
Victoria, British Columbia : Canada. Department of Fisheries and Oceans, 1977. 91 pp.

333.954 12 Bra

This study investigates the socio-economic importance of marine-related renewable resource use to the Inuit, Metis and Indians living adjacent to the Beaufort Sea. Factors considered as socio-economically important include the level and distribution of local and export sales, domestic use of wildlife harvests, employment and income. The resources considered are fish, seals, whales, polar bears and the Arctic fox. The intent of this study is to aid in the assessment of potential changes in the marine environment resulting from offshore drilling activities in the Beaufort Sea which could alter resource use patterns.

socio-economic aspects / Inuit / native peoples / Beaufort Sea / Beaufort Sea Project / Aklavik, N.W.T. / Inuvik, N.W.T. / Tuktoyaktuk, N.W.T. / Holman Island, N.W.T. / Paulatuk, N.W.T. / Sachs Harbour, N.W.T. / hunting / fishing / fisheries / exports / native harvest / employment / income and wages / fish / seals / whales / bears, polar / fox, Arctic

B 55 "Streamlining Frontier Development Approvals: The Local Northern View."
Titus Allooloo.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 18 - MAY 1, 1981.
edited by Claudette Reed Upton.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 186-194.

333.823 15 Fro

This paper addresses the concerns of northern peoples regarding large-scale development, particularly of oil and gas, in the high arctic. The speaker takes a look at the history of northern development and, specifically, examines the expected impact of development proposals which have been considered in the community of Pond Inlet - from the drilling of an exploratory well in Lancaster Sound to the proposed establishment of a full-scale traffic corridor through the Northwest Passage. The author expresses concern over the threat to Inuit lifestyles, socio-economic structure and culture, and emphasizes the importance of preserving the environment which plays such a large role in the lives of northern and native peoples.

workshops / socio-economic impacts / Arctic / environmental impact / native peoples / Pond Inlet, N.W.T. / Lancaster Sound, N.W.T. / Inuit / northern energy development / tourism / Northwest Passage / APOA

B 56 TOWARDS THE MANAGEMENT OF SOCIO-ECONOMIC IMPACTS RELATED TO THE ALASKA HIGHWAY PIPELINE PROJECT. IN-MIGRATION/POPULATION. DRAFT.
Denis De Pope.
Winnipeg, Manitoba : Interdisciplinary Systems Ltd., 1978. n.p.

330.971 DeP

All Yukon communities located in or near the proposed Alaska Highway Gas Pipeline (AHGP) corridor, except for Whitehorse, have a population of less than 1000 people. Consequently, it would take reasonably small changes in the population of these communities to cause severe disruptions in their structure and stability. Prepared for the AHGP panel, this report identifies and discusses problems and issues related to the in-migration of pipeline construction workers, and the potential effects of this influx on local communities. As well, current and proposed policies for directly controlling the flow of people into the Yukon are discussed, including the role of federal and territorial governments and trade unions.

Yukon Territory / communities / AHGP / socio-economic impacts / pipeline construction / employment / housing / government / Alaska Highway Pipeline Panel

B 57 THE TRAINING AND EMPLOYMENT OF NORTHERN CANADIANS: AN ANNOTATED BIBLIOGRAPHY.
edited by J.C. Finley and C.R. Goodwin.
Environmental Studies Revolving Funds Report No. 050.
Calgary, Alberta : Arctic Sciences and Technology Information System, Arctic Institute of North America, 1986. 206 pp.

016.331 Fin

Published under the auspices of the Environmental Studies Revolving Funds (ESRF) this bibliography provides a representative collection of references to materials about the training and employment of northern Canadians. The geographic scope of the bibliography focuses on the Northwest Territories and Yukon. The Mackenzie Valley and Delta regions are strongly represented, reflecting the interest of oil and gas companies which has generated a large number of studies and planning documents. Subject, geographic, author, title and serial indices are provided.

ESRF / bibliographies & indices / employment / training / Northwest Territories / Yukon Territory / Mackenzie Valley, N.W.T. / Mackenzie Delta, N.W.T. / northern energy development / socio-economic aspects / income and wages

B 58 YUKON ECONOMIC PLANNING STUDIES 1965 - 1985. AN ANNOTATED BIBLIOGRAPHY.
Nancy P. Cameron.
[Whitehorse, Yukon Territory] : Yukon. Department of Education, Libraries and Archives Branch, n.d. 317 pp.

016.330 971 91 Cam

This bibliography provides an annotated inventory of Yukon economic planning studies. The scope covers Yukon - specific sectoral and regional economic planning studies, including initiatives of both private and public sectors, for the years 1965 to 1985. The bibliography contains 450 entries for both published and unpublished works including books, government and consultant reports, theses and articles. Entries are organized into 17 major subject divisions and call numbers are given for those items located in the Yukon Archives; for other entries a location code is provided. Personal author, corporate author and subject indices are appended.

bibliographies & indices / socio-economic aspects / regional planning / Yukon Territory / agriculture / fisheries / forestry / hunting / trapping / Beaufort Sea / hydrocarbon production / pipelines / mining / tourism / recreation / transportation

B 59 YUKON PIPELINE EMPLOYMENT TRAINING PLAN.
Yukon. Adult and Continuing Education Branch and Manpower and Labour Branch [Government of Yukon].
[Whitehorse, Yukon] : Yukon. Government of Yukon, 1980. 29 pp.

374.013 YTG

This training plan, designed for Yukon residents, provides for access to training and employment opportunities on the construction, operation and maintenance of the proposed Alaska Highway Gas Pipeline (AHGP) project. Specific employment sectors are identified and related training plans, with attached costs, are presented in appendices to the report. These employment sectors include: construction labourer, heavy equipment operator, industrial first aid personnel, truck driver, welder's helper, kitchen helper and clerk.

training / employment / Yukon Territory / YTG / AHGP / socio-economic aspects

B 60 YUKON RESIDENT EMPLOYMENT IN MEGA-PROJECT DEVELOPMENTS. A SURVEY OF MANPOWER DELIVERY SYSTEMS.
David N. Roddick.
s.l. : [Yukon. Department of Education. Manpower Branch], 1982.
133 pp.

330.971 91 Rod

Based on expected economic growth and employment opportunities, related to construction and development of resource-related industries in the Yukon, this study investigates the impact of mega-developments on local labour markets, manpower delivery services and employment opportunities for local residents. With the intent of providing the Yukon Territorial Government (YTG) with information pertinent to manpower planning and policy, the study examines the labour market and the nature and role of institutions and agencies (government and others). As well, various training and alternate employment services are identified and evaluated with respect to resident participation in mega-project developments. A list of references and contact people is appended.

Yukon Territory / YTG / employment / socio-economic aspects / training / education / government / CEIC / DIAND / native peoples / income and wages / Northern Pipeline Agency / AHGP

B 61 YUKON SEIAN SOCIOECONOMIC IMPACT MODEL.
Alaska Economics, Inc.
Juneau : Alaska Economics, Inc., 1985. 43 pp.

330.971 91 Ala

Prepared for the Yukon Department of Mines and Small Business, and funded by the Northern Oil and Gas Action Program (NOGAP), this document describes the Yukon Socio-Economic Impact Analysis (SEIAN) model. This computerized economic model is designed to promote responsible decision-making by reducing the time spent by analysts on rediscovery, by capturing important behavioral linkages, and by allowing more pertinent data to be considered. The model is presented in line by line detail, an appendix contains an abstract from the "Canada Standard Occupational Classification" and a list of references is provided.

NOGAP / Yukon Territory / socio-economic aspects / northern energy development / SEIAN

EXPLORATION AND OPERATIONS

C 1 "Accident Prevention Management - A Pro-active Approach."
L.N. Westermark.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986: SAFETY SESSION.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
17 pp.

665.502 8 Arc 1986

This paper presents Esso Resources Canada Limited's philosophy on safety management and the author discusses the ten key elements which are used in all the company's drilling operations: management safety/loss control responsibility; safety inspection; employee training; emergency preparedness; incident investigation and analysis; communications; protective equipment; hiring and placement; work methods; and award program.

conferences / Esso / safety measures / drilling, offshore / employment / training / communications / safety equipment

C 2 "Alaska Drilling and Workovers: Update on the Latest Developments."
Kevin Grimes.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. 6 pp.

622.182 82 CODD 1983

This paper briefly reviews the history of the Prudhoe Bay Field, Alaska, from the perspective of Arco Alaska Inc., the operator of the eastern half of the field (Sohio Alaska Petroleum is the operator of the western half). After describing the environment, this author discusses the current North Slope development and exploration activities and the types of equipment in use for drilling and workovers. The paper concludes with a look at planned and proposed future drilling on the North Slope, Alaska.

Prudhoe Bay, Alaska / Arco / Sohio / wildlife / tundra / North Slope, Alaska / exploration / drilling / technology / oil rigs / conferences

C 3 "Alaska Highway Gas Pipeline Project."
R.C. Johnson, S.D. Shepherdson and R.J. Cooke.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 99-107.

380.5 Nor

The Alaska Highway Gas Pipeline (AHGP) project is described in this paper, principally in the context of its impact on the transportation system of northern Canada. The project is described in terms of route, terrain, economic impacts, the nature of its construction, management and regulatory aspects. The logistics plans for the movement of material and construction personnel are described in some detail. The authors note that the pipeline system constitutes a major incremental addition to the north's transportation infrastructure and the first section of this paper provides a brief discussion of this aspect. Maps, diagrams and tables are included.

conferences / AHGP / pipeline routes / transportation / FPL(SY) / pipeline construction / pipeline facilities / regulations / socio-economic impacts / project management

C 4 ALASKA PETROLEUM AND INDUSTRIAL DIRECTORY, 1984-85.
Howell Publishing Company.
18th edition.
Anchorage, Alaska : Howell Publishing Company, 1984. various pag.

Ref 338.209 798 Ala

This annual directory lists over 25,000 companies, in 440 categories, connected to petroleum and related industries in Alaska. There are four indexes: subject categories, company name, personnel name, and advertiser.

Alaska / directories / petroleum industry / oil companies / exploration / operations / drilling, offshore / petrochemicals

C 5 "Alaska: Potential for Giant Fields."
J.J. Hohler and W.E. Bischoff.
In FUTURE PETROLEUM PROVINCES OF THE WORLD. PROCEEDINGS OF THE WALLACE E. PRATT MEMORIAL CONFERENCE, PHOENIX, DECEMBER 1984.
edited by Michel T. Halbouty.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1986.
pp. 131-142.

553.282 Wal

This paper examines the hydrocarbon potential of the offshore waters in the Arctic and the Bering Sea. The harsh environment and the seasonal restrictions caused by storm intensity and ice are discussed briefly in terms of their impact on the economic feasibility of developing hydrocarbon reserves. Estimates of Alaskan offshore potential in various basins are given, including a detailed geological description. The authors conclude that while the Alaskan offshore waters could provide the only remaining U.S. potential for discovering significant numbers of giant oil and gas fields, each location identified will require a "super-giant" oil field to reach the threshold level needed for development.

Arctic / hydrocarbon reserves / Bering Sea / geology / Beaufort Sea / sedimentology / natural gas / conferences

C 6 "Alyeska Reroutes Trans-Alaska Pipeline at MP200."
Gary G. Simmons and John E. Ferrell.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineering, 1986.
pp. 461-471.

620.411 3 Col 1986

This paper discusses the 1985 winter-time repair and reroute of the Trans-Alaska Pipeline System (TAPS). The problem identification (the pipe had settled approximately 13 feet), repair options and construction methods are presented here, together with some discussion on construction difficulties encountered. Recommendations considered useful to other remote Arctic pipeline operators conclude the paper.

TAPS / Alyeska Pipeline Service Co. / pipeline repairs / geotechnology / pipeline construction / Alaska / conferences

C 7 "Aquit et al Hekja 0-71 - 'An Operational Success'."
R.G. Munro.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD), [TEXTS OF PAPERS PRESENTED]. EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

During the 1979 and 1980 summer drilling seasons off the southeast coast of Baffin Island, Aquitaine Company of Canada Ltd. drilled and tested the first offshore discovery well in the Davis Strait. This paper highlights the success of the Hekja project (Hekja 0-71 is a wellsite located in the southern Davis Strait), and details the major operational problems in drilling and testing in the harsh environment of the area.

Baffin Island, N.W.T. / Aquitaine / Davis Strait, N.W.T. / drilling, offshore / operations / exploration / conferences

C 8 "Arctic Islands Underwater Completions."
L.J. Franklin.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 19-24.

333.823 05 Arc 1978

This paper deals with the problems encountered, and the solutions developed, in exploring for natural gas in an area which is more than 70 percent underwater and which is frozen most of the year. In a step-by-step manner, the author outlines Panarctic's exploration work in the Arctic Islands and the development of an offshore ice platform drilling system. This technical report is supported by diagrams and a photograph.

drilling, offshore / Drake F-76 / Panarctic Oils / exploration / Arctic Islands / natural gas / pipeline design / workshops / APOA / CPA

C 9 "Arctic Offshore Safety Sub-Committee."
Denis Drown.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 76-78.

333.823 05 Arc 1984

With the aid of tables and a graph, this brief paper identifies the composition and terms of reference of the Arctic Offshore Safety Sub-Committee. Accident prevention, reporting, and investigation, as well as emergency preparedness and regulatory concerns, are specified as subjects to be addressed. An organizational diagram shows the relationship between the Sub-Committee and the Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD).

Dome / Gulf / Esso / APOA / CPA-OOD / arctic conditions / drilling, offshore / safety measures / health care / Beaufort Sea / training / regulations / exploration / workshops

C 10 "The Arctic Pilot Project: A Case History."
R.J. Gibbs.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28-MAY 1, 1981.
edited by Claudette Reed Upton.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 138-148.

333.823 15 Fro

Using maps and photographs to illustrate this paper, the speaker outlines the basic plan of the Arctic Pilot Project. This project involves a transportation system designed to deliver natural gas from the Drake Point field on Melville Island, in the Arctic Islands, to eastern Canada using ice-breaking LNG carriers. The planning process is reviewed, as are the approval and review processes involved at each stage of the project.

workshops / Arctic Islands / Melville Island, N.W.T. / Drake Point, N.W.T. / transportation, marine / tankers / ice-breaking vessels / Arctic Pilot Project / LNG / NOVA / Dome / Petro-Canada / Panarctic Oils / Melville Shipping Ltd. / shipping / APOA

C 11 ARCTIC TANKER LOADING AND MOORING.
K.K. Tue-Fee and W.H. Jolles.
Transport Canada Report No. TP 7371E.
Ottawa, Ontario : Canada. Transport Canada. Canadian Coast Guard, 1986. 298 pp.

627.3 Tue

The concept of loading Arctic tankers from exposed terminals in the Arctic offshore has been the subject of several investigations. In this particular study, based on the experience gained by Canadian Marine Drilling Limited (Canmar) in the operation of Arctic mobile drilling caissons, and on review of previous, studies it is clearly indicated that an approach by vessel to an exposed terminal production facility during the winter is feasible. This report investigates the mooring and loading concepts and techniques, the associated equipment and its cost, as well as the related downtime for year round Arctic operations at exposed terminals. Numerous graphs, tables and diagrams are included and there is a list of references.

Arctic / tankers / transportation, marine / Canmar / arctic mobile drilling structure / drilling, offshore / oil rigs / operations / climatology / ice, sea / Beaufort Sea / water temperature / Bridport Inlet, N.W.T. / wind / waves / ice management

C 12 "Arctic Transportation - Problems and Solutions."
L.J. Franklin.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 114-116.

380.5 Nor

Oil and gas exploration in the Arctic Islands presents operators with transportation problems in two areas. Firstly, the movement of workers, equipment, materials and supplies to support the exploration venture; this author defines problems encountered and describes methods used to solve them. Secondly, the need for efficient and safe transportation of discovered hydrocarbons; the relative merits of several transportation systems, including ice-breaking tankers, submarine tankers, and pipelines, are reviewed.

conferences / Arctic Islands / exploration / transportation / tankers / pipelines / tankers, submarine / ice-breaking vessels

C 13 "Arctic Well Servicing - Arco Alaska."
Mark Major.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD), [TEXTS OF PAPERS PRESENTED]. EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

This author is a senior drilling engineer with Arco Alaska and this paper describes Arco's experiences during the development of the Prudhoe Bay field, and during the exploration of North Slope areas of Alaska. The pre-and post-start-up servicing procedures are described and the problems encountered due to arctic conditions, such as the freeze-up of the fluids used for servicing, are discussed. The article is illustrated and a question and answer period, which followed the presentation, is documented.

drilling / drilling, offshore / Arco / Arctic / Alaska / Prudhoe Bay, Alaska / North Slope, Alaska / conferences / arctic conditions / oil wells

C 14 "Beaufort Sea Drilling with Low-toxicity, Oil-based Mud."
C.A. Johancsik.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
18 pp.

665.502 8 Arc 1986

This paper highlights case histories of wells drilled with a low-toxicity, oil-based drilling fluid in the Beaufort Sea in the spring of 1985. It is reported that some of the severe problems which had been encountered with water-based mud were virtually eliminated. The authors, who represent Esso Resources Canada Limited, indicate, however, that although significant improvements are realized with oil mud, drill hole stability may continue to be a problem in Beaufort Sea drilling.

conferences / drilling fluids / technology / Beaufort Sea / Esso / drilling, offshore

C 15 BEAUFORT SEA PETROLEUM TECHNOLOGY ASSESSMENT.
Han Padron Associates.
U.S. Minerals Management Service. Technical Report No. 112.
s.l. : U.S. Department of the Interior, Minerals Management Service, 1985. various pag.

627.98 Han

This study identifies and evaluates the various technologies associated with offshore petroleum development, in the multi-year ice zone of the Beaufort Sea, and analyzes the potential for extraction and use of sand and gravel resources for exploration and production platforms and structures. As well, the study analyzes associated unit costs, timing and work force requirements. Diagrams, tables and graphs supplement the text and a comprehensive list of references is provided.

technology / exploration / hydrocarbon production / Beaufort Sea / gravel mining / sand / artificial islands / ice, sea / operations / ice / waves / wind / currents / geotechnology / meteorology / financing / transportation, marine / pipelines / tankers / marine terminals

C 16 "Beaufort Sea Transportation: Tankers or Pipelines - A Technical Comparison."
A. Churcher.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 108-110.

380.5 Nor

This paper presents the results of a study analyzing the economic, environmental and technical characteristics of the use of tankers and pipelines for transporting oil and gas from the Beaufort Sea. Performance and safety characteristics of tankers and pipelines are compared and it is argued that while both systems are feasible, costing of pipeline projects is unreliable and predicting the performance of ice-breaking tankers is difficult. Therefore, until the industry has a better understanding of the major parameters of the options, by conducting demonstration projects and experiments, it is suggested that a global decision is not possible.

conferences / transportation / transportation, marine / pipelines / tankers / ice-breaking vessels / environmental assessment / pipeline costs / safety measures / technology

C 17 BENT HORN PRODUCTION PROJECT. APPLICATION FOR DEVELOPMENT PLAN APPROVAL. I - PROJECT SUMMARY.
Panarctic Oils Ltd.
s.l. : Panarctic Oils Ltd., 1984. 56 pp.

333.823 15 Pan v. 1

This description of the Panarctic Oils Ltd. proposal, to develop the Bent Horn oil field on Cameron Island, N.W.T., serves as Panarctic's application to the Canadian Oil and Gas Lands Administration (COGLA) for development plan approval. The Bent Horn project is a phased development of a small oil deposit with all production and storage facilities located on land. Transportation of the oil, by tankers, is planned only for summers. This document also provides socio-economic and environmental evaluations of the project, and oil spill contingency plans are presented.

Panarctic Oils / Bent Horn Project / Cameron Island, N.W.T. / COGLA / exploration / geology / hydrocarbon reserves / hydrocarbon production / tankers / socio-economic aspects / Canadian content / environmental assessment / oil spills / oil spill countermeasures / climatology / permafrost / hydrology / vegetation / mammals / land use

C 18 BENT HORN PRODUCTION PROJECT. APPLICATION FOR DEVELOPMENT PLAN APPROVAL. VII - ONSHORE CONTINGENCY PLAN.
Panarctic Oils Ltd.
s.l. : Panarctic Oils Ltd., 1984. 25 pp.

333.823 15 Pan v. 7

This contingency plan was prepared to document Panarctic's response to any foreseeable emergency situation which may arise from the proposed Bent Horn production project on Cameron Island, N.W.T. Emergency situations addressed include serious injury or death of personnel, aircraft accidents, fires, explosions, loss of well control, ruptures or leaks in pipelines and oil or chemical spills on land. In addition, the plan addresses reporting procedures, training and equipment availability. The plan was compiled to comply with the safety regulations administered by the Canadian Oil and Gas Lands Administration (COGLA).

Panarctic Oils / Bent Horn Project / Cameron Island, N.W.T. / safety measures / fire / explosions / blowouts / pipeline rupture / oil spills / oil spill countermeasures / training / safety equipment / COGLA / regulations / aircraft

C 19 BIBLIOGRAPHY OF THE LANCASTER SOUND RESOURCE MANAGEMENT PLAN: SUPPORTING DOCUMENTATION.
edited by Jean C. Finley.
ASTIS Occasional Publication No. 11.
Calgary, Alberta : The Arctic Institute of North America, 1983.
13 pp.

016.5 Fin

This annotated bibliography relates to the Resource Management Plan for development of hydrocarbon resources in the Lancaster Sound region. The bibliography includes subject, geographic, author, title and serial indices.

bibliographies & indices / Lancaster Sound, N.W.T. / Northwest Territories / hydrocarbon production / drilling / environmental assessment / socio-economic aspects / pipelines / ecology / wells / Consolidex Magnorth Oakwood Joint Venture

C 20 BUSINESS OPPORTUNITIES. MACKENZIE DELTA-BEAUFORT SEA EXPLORATION AGREEMENT.
Esso Resources Canada Limited.
s.l. : Esso Resources Canada Limited, 1983. n.p.

PAM 1982-30

This catalogue provides information on Esso Resources' business practices and northern business opportunities arising from Esso's Mackenzie Delta-Beaufort Sea exploration program. The company's purchasing policy is outlined and procedures for registration on their Bidders' List are explained. An alphabetical list summarizing business opportunities and tender requirements is included as well as details of all pertinent information relative to conducting business with Esso. An overview of the status of Esso's Exploration Agreement for offshore and onshore programs is provided and there is a glossary of terms used in the catalogue.

Esso / Beaufort Sea / exploration / drilling / drilling, offshore / Mackenzie Delta, N.W.T. / Canadian content / employment / business / northern energy development

C 21 "Canada Benefits - An Industry Perspective."
D. Harris.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. D1-D6.

333.823 05 Arc 1985

The author of this paper addresses what "Canada Benefits" means to the oil and gas industry in this country. As well, the activities which are underway to move governments and industry into a new era of Canada Benefits are discussed. Emphasis is placed on the need for full and fair access for competitive Canadian suppliers, and technology transfer to achieve Canadian engineering and design capability.

Canadian content / government / regulations / natural gas / hydrocarbon production / technology / engineering / exploration / oil companies / regulatory agencies / COGLA / workshops / APOA / CPA-OOD

C 22 THE CANADIAN ARCTIC AND NORTHERN REGIONS AND OTHER SELECTED MATTERS OF CURRENT INTEREST TO THE OIL AND GAS INDUSTRY: PETROLEUM LAW SUPPLEMENT.
Alberta Law Review.
edited by Maurice J. Sychuk.
Alberta Law Review: Special Issue, vol. x No. 3, 1972.
Edmonton, Alberta : University of Edmonton, Faculty of Law, 1972. pp. 391-530.

343.077 2 Alb

This volume contains a selection of articles on the legal aspects of various facets of oil and gas exploration, production and marketing. Topics include developments in oil and gas law, legislation and the Arctic environment, legal liability relating to oil spills and blowouts, leases, drilling funds, exports, foreign investment and taxation. There is an author index, subject index and index of legal cases cited in the text.

legal aspects / natural gas / legislation / regulations / hydrocarbon production / exploration / Arctic / northern energy development / drilling funds / oil spills / blowouts / foreign investment / taxation / government / resource-leasing

C 23 "Canadian Arctic Energy Resources - A Development and Transportation Strategy."
James E. Lee.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 13-19.

380.5 Nor

Representing Esso Resources Canada Limited, this author outlines the company's strategy for resource development and transportation. An account of Esso's experiences in the Mackenzie Delta/Beaufort Sea regions is provided and details of a phased development schedule, for Norman Wells and the Beaufort Sea, are discussed. As well, route and mode alternatives for the transportation of oil and gas are included. Diagrams supplement the text.

conferences / Esso / transportation / Mackenzie Delta, N.W.T. / Beaufort Sea / Norman Wells, N.W.T. / pipelines / tankers

C 24 CANADIAN ARCTIC MARINE ENERGY PROJECTS. PRESENTATION TO THE SPECIAL COMMITTEE OF THE SENATE ON THE NORTHERN PIPELINE.
Canadian Arctic Resource Committee.
Ottawa, Ontario : Canadian Arctic Resources Committee, 1982.
52 pp.

333.823 15 CARC

This presentation focuses on the projects which have been proposed to transport hydrocarbon resources from the Canadian Arctic by marine mode. Particular emphasis is given to the plans to transport Beaufort Sea oil and Melville Island Gas (the Arctic Pilot Project). The hydrocarbon industry's plans for the Beaufort Sea are reviewed and then analyzed in terms of a number of constraints (geology, economics, technology, markets, research needs and government policy) to determine the probability of early development. The projects which have been proposed to transport Sverdrup Basin hydrocarbons are also discussed.

transportation, marine / hydrocarbon production / Arctic / Beaufort Sea / Melville Island, N.W.T. / Arctic Pilot Project / geology / socio-economic impacts / technology / markets / government / Sverdrup Basin, N.W.T. / tankers / pipelines / tankers, submarine / CARC

C 25 CANADIAN BENEFITS ASSOCIATED WITH APPLICATION FOR EXPLORATION AGREEMENT ON GULF-OPERATED SEA LANDS. PRELIMINARY DRAFT.
Gulf Canada Resources Inc.
s.l. : [Gulf Canada Resources Inc.], 1982. 83 pp.

330.971 Gul

This document is a preliminary draft of Gulf's submission to the Canadian Oil and Gas Lands Administration (COGLA) on Canadian benefits associated with the renegotiation of the company's existing Beaufort Sea exploration leases. Gulf's general employment and training policies and practices are described. As well, the company's history, policies and plans for optimizing northern economic and social benefits, and for ensuring that local circumstances are fully considered during planning and implementation of the company's activities, are discussed.

COGLA / exploration / Gulf / Beaufort Sea / employment / training / socio-economic aspects / Canadian content

C 26 THE CANADIAN BENEFITS OF THE BEAUFORT EXPLORATION PROGRAM 1982-1987.
Dome Petroleum Ltd.
Calgary, Alberta : Dome Petroleum Ltd., 1983. 79 pp.

333.823 216 327 Dom

This report outlines Dome's commitment to maximize the benefits to Canada arising out of drilling activity under the terms of the exploration agreements for the Beaufort Sea region. The report reviews the policies and procedures that the company has established, and the benefits that have resulted, since it started drilling offshore in the Beaufort Sea in 1975. As well, the potential benefits that will be derived in the future from the proposed exploration program are outlined.

Beaufort Sea / Dome / drilling, offshore / exploration / technology / marketing / socio-economic aspects / Canadian content / employment / Arctic / northern energy development / COGLA / environmental assessment

C 27 CANADIAN OIL REGISTER 1985-86.
C.O. Nickle Publications.
Calgary, Alberta : C.O. Nickle Publications, 1985. various pag.

Ref 338.209 71 Canr

Published annually, this directory lists over 4,500 companies and 15,000 key personnel participating, directly or indirectly, in Canada's energy industry. Companies with similar interests are grouped together, an offshore directory is included and there is a general index and an index of advertisers.

petroleum industry / directories / oil companies / exploration / operations / drilling, offshore / petrochemicals

C 28 "The Challenge of the 80s: An Industry View."
Michael H. Bell.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 9-10.

380.5 Nor

This author emphasizes the importance of marine transportation to successful development of northern energy resources. Specifically, the operation of the M.V. "Arctic" ice class III cargo vessel is cited as an example of a successful joint government/industry venture. As well, the need for orderly and controlled development of Arctic shipping is identified and discussed.

conferences / transportation, marine / ice-breaking vessels / shipping / Arctic / technology

C 29 THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. 223 pp.

380.5 Nor

This volume contains the texts of papers presented at the subject conference on northern transportation. The scope of the content is wide and covers all aspects of transportation in the Yukon and Northwest Territories. A list of conference registrants is provided.

conferences / transportation / transportation, marine / transportation, air / pipelines / tankers / roads / Yukon Territory / Northwest Territories / Arctic / Beaufort Sea / operations / technology / Whitehorse, Yukon

C 30 "Charting of Safe Deep Draught Shipping Routes in Canadian Arctic Waters."
S. MacPhee and J. O'Shea.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 2].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 820-838.

380.509 11 IPTC

This paper traces the history of hydrographic surveying in Canada's Arctic and looks briefly at the geography of the Arctic, activities of early explorers and the development of Canadian Arctic marine transportation routes. The current status of hydrographic charting north of 60° is described and the impact of hydrocarbon exploration and mining on the Canadian Hydrographic Service (CHS) is discussed. The CHS research and development program, aimed largely at resolving problems associated with surveying in ice-covered waters, is examined. Maps, photographs and diagrams illustrate this paper and a list of references is included.

conferences / CHS / Arctic / geography / transportation, marine / hydrography / bathymetry / technology / ice, sea / exploration

C 31 "Comparison of Legislation Affecting Foreign Exploitation of Oil and Gas Resources in Oil Producing Countries."
Martin M. Olisa.
In THE CANADIAN ARCTIC AND NORTHERN REGIONS AND OTHER SELECTED MATTERS OF CURRENT INTEREST TO THE OIL AND GAS INDUSTRY: PETROLEUM LAW SUPPLEMENT.
Alberta Law Review.
edited by Maurice J. Sychuk.
Alberta Law Review: Special Issue, Vol. x No. 3, 1972.
Edmonton, Alberta : University of Edmonton, Faculty of Law, 1972.
pp. 487-505.

343.077 2 Alb

Foreign investment in Canadian industry raises many issues. This article summarizes and compares the typical legislative and contractual provisions that are used by the governments of other oil producing countries, with respect to the terms and conditions upon which foreign industry can participate in exploration and production of oil and gas resources.

foreign ownership / hydrocarbon production / exploration / legislation / regulations / Europe / Middle East / U.S.A. / South America

C 32 "Comprehensive Planning Results in Good Safety Statistics.
Ed Fercho.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986: SAFETY SESSION.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
13 pp.

665.502 8 Arc 1986

Incorporated by Dome Petroleum Limited in 1973 to carry out floating drilling operations in the Beaufort Sea, Canadian Marine Drilling Limited (Canmar) drilled 31 wells from 1976 to the end of 1986. Many of the wells present abnormal pressures and other hazards which require safety conscious crews and safety procedures. This paper highlights the way in which comprehensive planning at Canmar results in good work safety records and reduces overall costs due to lost hours and operational downtime.

conferences / Dome / Canmar / Beaufort Sea / drilling, offshore / safety measures / operations

C 33 CONCEPTS AND TECHNIQUES IN OIL AND GAS EXPLORATION.
edited by Kamal C. Jain and Rui J.P. deFigueiredo.
Tulsa, Oklahoma : Society of Exploration Geophysicists, 1982.
289 pp.

622.182 8 Jai

This publication presents an overview of modern exploration practices in the field of oil and gas development. Two major exploration methods are examined in detail - seismic exploration and well log prospecting. Emphasis is generally on the concepts, although several techniques are presented to show the state-of-the-art in exploration practices. This book also looks into areas of new development as well as looking back at the geologic basis for the habitats of hydrocarbons. Illustrations, some in colour, appear throughout the volume. Each chapter includes a list of references and an index is provided.

exploration / seismic exploration / well-log prospecting / geology / hydrocarbon reserves / natural gas

C 34 "Construction and Installation of Deepwater Floating Systems."
Andrea Mangiavacchi and Philip Rawstron.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 133-141.

622.182 82 Har 1985

This article discusses various alternatives for using floating production systems in developing offshore hydrocarbon reserves and considers related systems and subsystems. A floating production system covers a variety of concepts such as production facilities on or in the vessel, subsea wellheads, production risers, and a storage or transportation system, but not all systems include each of these components. The authors devote a short section of this article to the deployment of these structures in the Beaufort Sea, Bering Sea and other Arctic regions.

arctic mobile drilling structure / drilling, offshore / storage / transportation, marine / tankers / oil wells / Beaufort Sea / Bering Sea / Arctic / icebergs / technology / operations

C 35 "Construction and Operation of the Conical Drilling Unit, Kulluk."
D.A. Park.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. 11 pp.

622.182 82 CODD 1983

In 1981, faced with the possibility of insufficient drilling equipment to meet accelerated industry exploration programs in the Beaufort Sea, Gulf Canada Resources Inc. elected to build a major new drilling system able to operate in the various water depths encountered in the Beaufort and capable of operating beyond the regular drilling season for conventional drillships. This paper describes the drilling system, to be operated by Gulf's subsidiary, BeauDril. It includes two drilling units - Kulluk and Molikpaq - two ice-breakers, two ice-breaking supply vessels, a large administration base and a marine base.

drilling, offshore / Beaufort Sea / exploration / Gulf / BeauDril / Kulluk / Molikpaq / ice-breaking vessels / marine support base / technology / conferences

C 36 "Construction and Operational Issues Associated with Production in the Canadian Beaufort Sea.
M.V. Lennox et al.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986. n.p.

665.502 8 Arc 1986

This paper argues that advancements in offshore Arctic technology made in the Beaufort Sea have been primarily due to an ambitious exploration program. These advancements and the discovery of potentially economic oil reservoirs provide an incentive to look ahead to production with confidence. This paper discusses some of the major construction and operational concerns associated with a major production/development project in the Beaufort Sea.

conferences / drilling, offshore / technology / exploration / operations / construction / Beaufort Sea / hydrocarbon reserves

C 37 "Construction and Quality Assurance for Super-CIDS [Concrete Island Drilling Structure].
R.W. LaFraugh, M. Zinserling and J.F. McNary.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985.
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. 2 vol.

620.411 3 Off 1985

The first use of high-strength, light-weight concrete in a mobile offshore drilling structure is described in this paper. Critical aspects of concrete design and production are presented along with a description of the quality assurance program that complemented construction. Diagrams and photographs supplement the text of this paper.

conferences / drilling, offshore / Beaufort Sea / oil rigs / CIDS / Glomar Beaufort Sea I / technology / operations / exploration

C 38 CONTINGENCY PLAN AND EMERGENCY PROCEDURES [PANARCTIC OILS LTD.].
Panarctic Oils Ltd.
Calgary, Alberta : Panarctic Oils Ltd., 1983. 104 pp.

628.168 33 Pan

Prepared in response to the 1980 Canada Oil and Gas Drilling Regulations, this Panarctic contingency plan assigns administrative responsibility, and outlines procedures to be followed, in the event of: serious injury or death of personnel, an accident involving aircraft, fire, hydrocarbon or chemical spill, or the loss of well control. Panarctic's offshore drilling program for the 1983-84 drilling period, to take place in the Arctic Islands, is outlined, including reference to physical environment and biological and socio-economic sensitivity.

regulations / drilling, offshore / Panarctic Oils / safety measures / aircraft / fire / oil spill / blowouts / Arctic Islands / environmental assessment / socio-economic aspects

C 39 "Conventional Transportation Systems Could Support Northern Development in 1980's."
Robert J. Whyte.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 53-57.

380.5 Nor

On behalf of Esso Resources Canada Limited, this speaker describes development at Norman Wells and the company's plans for Beaufort Sea hydrocarbon development. Various modes of transportation are described - barging on the Mackenzie River, use of corporate aircraft, winter roads and marine transportation. It is argued that conventional transportation systems, such as barging, trucking and air, are adequate to service most of Esso's future development plans.

conferences / Esso / Norman Wells, N.W.T. / Beaufort Sea / exploration / transportation / transportation, marine / transportation, air

C 40 THE CRUDE PETROLEUM AND NATURAL GAS INDUSTRY 1983.
Canada. Statistics Canada.
Canada. Statistics Canada. Catalogue 26-213.
Ottawa, Ontario : Canada. Statistics Canada, 1983. 50 pp.

338.272 8 Cru

The data included in this report were compiled using information obtained from surveying all companies involved in oil and gas exploration, development, and production in Canada. The survey results cover the value of marketable production, the number of employees in the industry, operating and capital expenditures, drilling completions, established hydrocarbon reserves, and marketable natural gas reserves. A list of definitions is provided as well as a short list of publications on energy and mineral statistics.

statistics / employment / hydrocarbon reserves / natural gas / operating costs / drilling / hydrocarbon production / exploration / operations / government

C 41 "Current Ice Road and Structure Design Construction Procedures."
D.M. Masterton and R.P.Gamble.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 2].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 602-648.

380.509 11 IPTC

Ice roads are used extensively in the Arctic offshore to support construction and drilling operations. Ice pads, floating and grounded, are used to park equipment, store loads and to support drilling. The design of these roads and pads is discussed in this technical paper and construction techniques and equipment are described. Photographs and diagrams are used throughout to supplement the text and a list of references is provided.

conferences / ice / ice roads / technology / road construction / drilling, offshore / engineering / construction / ice pads

C 42 DACUM CHARTS.
Canadian Arctic Gas Study Limited and Alaskan Arctic Gas Study Company.
s.l. : Canadian Arctic Gas Study Limited, n.d. various pag.

374.013 2 CAG

DACUM is an acronym for "Developing a Curriculum" and this set of DACUM charts has been produced specifically to assist in training northern residents for employment within the petroleum industry. The single sheet skill profile which comprises the DACUM chart serves as a curriculum plan and an evaluation instrument for occupational training programs. This volume includes DACUM charts for millwright, industrial electrician, instrument mechanic, heavy equipment operator, heavy duty mechanic, and derrickman.

training / education / northern energy development / socio-economic aspects / employment / petroleum industry / CAGSL / Alaskan Arctic Gas Study

C 43 "The Dempster Highway and Western Arctic Development."
Dick Hill.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 136-140.

380.5 Nor

This paper presents a review of the history and development of the Dempster Highway and its present use by industry and for the purposes of tourism. The author discusses the need for upgrading the highway and its future use in support of Beaufort Sea and Mackenzie Delta hydrocarbon development. Tables and maps are included.

conferences / Dempster Highway / roads / road construction / Inuvik, N.W.T. / Dawson, Yukon / Beaufort Sea / Mackenzie Delta, N.W.T. / tourism / transportation / exploration / hydrocarbon production

C 44 "Design and Operation of the Arctic Ivik, a New Arctic Class II Vessel for the Beaufort Sea."
R. Armour, J. Wainwright and H. Hutton.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 244-254.

380.509 11 IPTC

In November 1984, Arctic Transportation Limited decided to design and construct an anchor handling/survey/offshore supply vessel for the Beaufort Sea. The vessel was designed to meet the requirements of the many companies exploring offshore in that area. The authors describe this vessel - the "Arctic Ivik" - including the economic and operating considerations which influenced her design and construction and her first season of operation in the Beaufort Sea. The paper is illustrated.

conferences / Arctic / transportation, marine / Beaufort Sea / exploration / operations / technology / ships / engineering

C 45 "The Design, Installation and Performance of a Berm Supported Exploration Structure in the Beaufort Sea."
K.J. Hewitt et al.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985.
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. 2 vol.

620.411 3 Off

The design, installation, and performance of a berm-supported exploration structure in a dynamic ice environment is presented in this paper. Details are provided on design considerations, foundation characteristics, and extreme temperatures. A case history is presented which includes a discussion of on-site placement modifications which were necessitated by extreme ice conditions. The success of the modified placement technique is confirmed through a review of the caisson performance during a drilling season. This paper is illustrated and a short bibliography is included.

conferences / Canmar / Beaufort Sea / oil rigs / drilling, offshore / caissons / operations / ice, sea / steel structures / technology

C 46 "Design of Modular Structures for the Arctic."
Omer Haluk Muratoglu and Partha Ganguly.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineering, 1986. pp. 204-276.

620.411 3 Col 1986

In support of Sohio's efforts to continue the production and initial processing of oil from Prudhoe Bay, Alaska, production equipment must be shipped there every year. All production equipment, piping and ancillary electrical and control systems are pre-assembled, in the lower 48 states, inside environmentally controlled enclosures called modules. The modules are transported by barge to the Prudhoe Bay dock. The paper discusses the reasons for choosing this method of construction and the development of design criteria for the safe sea-lifting and transportation of such structures. The paper is illustrated and a short glossary is provided.

Sohio / Prudhoe Bay, Alaska / North Slope, Alaska / transportation / construction / technology / hydrocarbon production / transportation, marine

C 47 "Development of Beaufort Sea Hydrocarbons: An Opportunity for Canadian Industry."
Murray B. Todd.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28-MAY 1, 1981.
edited by Claudette Reed Upton.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 61-87.

333.823 15 Fro

The author of this paper discusses the potential benefits, to the Canadian economy, from the industrial stimulation associated with the development of new oil and gas reserves, particularly with reference to Dome's activities in the Beaufort Sea. Dome Petroleum estimates that 85 per cent of the goods and services associated with the exploration, development and transportation of hydrocarbons in the Beaufort Sea can be sourced in Canada, with the cooperation of the industrial sector and the government. Potential benefits to several industries are examined - ship building, construction, drilling, steel, and research and development. The author goes into considerable detail and provides numerous graphs and tables to illustrate his presentation.

workshops / Beaufort Sea / Dome / Canadian content / employment / northern energy development / drilling, offshore / transportation, marine / steel structures / tankers / pipelines / ice-breaking vessels / government / socio-economic impacts / APOA

C 48 "The Development of Helicopter Operational Capabilities in the Arctic."
T. Wolfe-Milner.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 336-351.

380.509 11 IPTC

This paper discusses the use of helicopters and the expected increase in demand for helicopters as oil and gas exploration and production in the Arctic increases. The design aspects, navigational features and operating conditions, particularly cold weather and ice conditions, are described. The author takes a look back at the early days of helicopters operating in the Arctic as well as a look forward to their future role in resource development in the harsh northern environment.

conferences / helicopters / Arctic / technology / ice / navigation / electronic navigation systems / communications / icing / safety measures / transportation / transportation, air

C 49 DOME OIL SPILL CONTINGENCY PLAN: BOOK 2 [EQUIPMENT LIST].
Dome Petroleum Limited
Beaufort EIS Reference Works 1982.
s.l. : s.n., 1982. various pag.

628.168 33 Dom

This volume provides the 16 appendices to Dome Petroleum's "Oil Spill Contingency Plan: Book 1". These appendices include contact lists, telephone numbers, procedures to follow in the event of an oil spill, and equipment and techniques available for oil spill countermeasures. This volume is intended to be used in conjunction with Book 1.

Dome / EIS / Beaufort Sea / environmental protection / oil spills / pollution, oil / oil spill countermeasures / fireproof booms / skimmers / dispersants / sorbents / in situ burning / environmental impact

C 50 "Drilling Fluids: Disposal in the Alaskan Beaufort Sea."
Sharon O. Hillman.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S , FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 162-166.

333.823 05 Arc 1983

From a United States perspective, the author of this paper briefly reviews the permits and regulatory requirements to be met by industry before offshore disposal of drilling fluids may be carried out. It is reported that, when properly disposed of, drilling muds will not kill marine life. Disposal of mud containing harmful quantities of oil or toxic substances is prohibited. This paper examines drilling fluid components, disposal methods and the effects of discharge of mud at sea.

workshops / Beaufort Sea, Alaskan / ecosystems, aquatic / drilling fluids / pollution, oil / waste disposal / regulations / toxicity / sedimentation / drilling, offshore / CPA / APOA / EPOA

C 51 "Drilling Rig Transportation in the Canadian Arctic Islands."
D.J. Baudais and L.J. Franklin.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 420-450.

380.509 11 IPTC

The Canadian Arctic Islands are known to contain large proven reserves of oil and gas. To successfully explore this territory, Panarctic Oils has established transportation methods for moving exploratory drilling rigs, supplies, construction equipment and personnel to remote drill sites. The authors of this paper, who represent Panarctic Oils, describe these methods, which include sea and air transportation, and which are used both onshore and offshore. The procedures for constructing roads to accommodate transport vehicles and airstrips, utilizing the features of the Arctic climate and terrain, are described as is the design of drilling rig components for transport. This paper is illustrated and a short list of references is provided.

conferences / Arctic Islands / exploration / Panarctic Oils / transportation / transportation, air / oil rigs / drilling / drilling, offshore / construction / road construction / aircraft / technology

C 52 "Drilling Unit Approval and Sea Ice, Alaska OCS."
R. Yilmaz Kuranel and Jeff Walker.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineering, 1986.
pp. 69-81.

620.411 3 Col 1986

This paper describes the types of ice conditions that have been, or could be, encountered while conducting Alaska Outer Continental Shelf (OCS) drilling operations. Ice monitoring programs, defence systems and alert procedures are reviewed as well as drilling unit safety, and safety regulations relative to operating during periods when sea ice is present. The paper is illustrated and a list of references is provided.

OCS / Alaska / drilling, offshore / safety measures / ice, sea / ice management / regulations / drillships / oil rigs / Beaufort Sea / conferences

C 53 ENGINEERING MANPOWER REQUIREMENTS 1980-2000 FOR MAJOR ENERGY-RELATED PROJECTS IN CANADA: A BROAD BRUSH APPRAISAL.
Foster Research.
Ottawa, Ontario : Canadian Council of Professional Engineers, 1980.
29 pp.

331.762 Fos

The purpose of this report is to determine the requirements for professional engineers to design, construct and operate major energy-related projects in Canada over the period 1980-2000. A nation-wide list of projects in the energy field, as foreseen by the authors, is provided. The authors transcribe these projects into estimated requirements for engineers through the use of indices which relate to types and estimated capital costs of the projects considered. The report suggests that there will be great challenges and opportunities for Canadian professional engineers, scientists, technicians, technologists and skilled trades people as major energy-related projects unfold.

engineering / energy requirements / energy costs / hydrocarbon production / electricity / natural gas / Beaufort Sea / northern energy development / exploration / nuclear power / coal / technology

C 54 "EPOA/APOA Sub Committee Report of Health Care Providers for Offshore and Remote Sites."
D. Johnston and D. McDougall.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 105-113.

333.823 05 Arc 1983

This paper discusses the role of the health care provider, referred to in this context as the rig medic, for offshore and remote areas of Canada. After examining regulations aimed at ensuring adequate patient care for remote workers, the authors make recommendations for improving and increasing the level of service and training, specifically referring to air medivac procedures, hypothermia, public health and disaster planning. The necessity of developing high standards for patient care is emphasized.

workshops / health care / safety measures / hypothermia / public health / regulations / training / EPOA / APOA / CPA / drilling, offshore

C 55 EXPLORATORY STRATIGRAPHY.
Glenn S. Visher.
Tulsa, Oklahoma : Pennwell Books, 1984. 334 pp.

622.182 82 Vis

This study begins by providing background information on the stratigraphic framework and then describes the exploration tools and a model approach to exploration stratigraphy. The sedimentary processes and responses of selected geographic areas are also discussed. The author emphasizes the various patterns in stratigraphic studies and shows how these themes can be integrated to predict reservoir patterns and hydrocarbon accumulations. This book contains many illustrations and an in-depth index and bibliography are provided.

stratigraphy / geology / sedimentology / hydrocarbon reserves / exploration / seismicity

C 56 "Gloryhole Tool: Design, Fabrication and Operation."
H.R. Stewart et al.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
13 pp.

665.502 8 Arc 1986

Conventional offshore drilling operations normally install wellhead facilities flush with the seafloor, with ancillary equipment, such as blowout preventors, exposed above the seafloor. In northern latitudes such as the Beaufort Sea, where ice ridges and icebergs are present, the possibility exists that the keels of ice features may impact and damage any exposed facilities. Gloryholes, which are excavations in the seafloor, enable wellhead and associated equipment to be relocated below the ice interaction zone. In this paper, recent gloryhole excavation experience is reviewed as a background to highlighting a specific project in which a large diameter cased gloryhole was excavated during 1986. The primary purpose of the exercise was to provide the Kulluk, Gulf's ice strengthened conical drilling unit, with a complete well package capability, including gloryhole excavation.

conferences / drilling, offshore / Beaufort Sea / ice ridges / icebergs / Kulluk / Gulf / exploration / operations / technology

C 57 HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
170 pp.

622.182 82 Har 1985

This publication presents a series of technical articles on offshore exploration and production, particularly in deep water and arctic environments. There are five sections - drilling, production, transportation, construction and pipelines.

drilling, offshore / hydrocarbon production / Arctic / arctic conditions / exploration / transportation, marine / construction / pipelines / technology / engineering / operations

C 58 "Heavy Fuels for Arctic Shipping."
Daniel Paro.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 172-182.

380.5 Nor

This author contends that the future fuel for most marine applications is likely to be heavy fuel. The probable composition of future heavy fuels is shown in tabular format, and the paper discusses the increasing feasibility of its use in different kinds of marine applications. The necessary qualities of propulsion and other mechanical requirements are outlined and the author gives advice concerning auxiliary systems and installation. Numerous tables, graphs and photographs illustrate this paper.

conferences / transportation, marine / shipping / engineering

C 59 "Hydrographic requirements for Arctic Shipping: Marine Transportation Operations."
John O'Shea.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 169-171.

380.5 Nor

This paper discusses the major survey program launched in the Beaufort Sea, by the Canadian Hydrographic Service (CHS), in view of possible construction of deep-draft terminals in the western Arctic. The over-ice and other survey techniques used are briefly described. The Canadian Hydrographic Service has statutory authority to carry out surveys of all the navigable waters of Canada and to publish the results of these surveys in the form of navigational charts and related publications.

conferences / CHS / navigation / Beaufort Sea / Arctic / DFO / government / surveys / transportation, marine / legislation

C 60 "Ice Islands May Aid Beaufort Development."
Richard Goff.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 121-125.

622.182 82 Har 1985

This article reviews the design and use of artificial islands for drilling purposes in the Beaufort Sea. The author then describes artificial ice island construction techniques, including the results of field tests conducted to determine the physical characteristics of a sprayed ice island and to demonstrate its use as a structure for exploration drilling.

ice, sea / ice islands / artificial islands / technology / Beaufort Sea / Arctic / construction

C 61 "Ice Management Procedures for Specialized Drilling Structures."
P.C. Kimmerly and K. Jones.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 2].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 764-792.

380.509 11 IPTC

This paper deals with BeauDril's (a Gulf subsidiary) ice management techniques for their Beaufort Sea operations. The authors describe BeauDril's fleet and operation centres (two drilling units, four ice-breaking vessels, one support tanker, a floating marine base and a shore base). Ice conditions encountered in the Beaufort Sea are discussed as well as the design features and operational procedures utilized by the company to deal with these conditions.

conferences / ice, sea / BeauDril / Gulf / oil rigs / ice management / drilling, offshore / ice-breaking vessels / marine support base / technology / ice floes / ice ridges

C 62 "The Importance to Canada of Beaufort Sea Resources."
Frank Milton.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
28 pp.

665.502 8 Arc 1986

This paper is comprised of the text for a slide presentation on Gulf Canada's Beaufort Sea hydrocarbon exploration activities. The results of Gulf's recently completed extended flow tests at the Amauligak location, which indicate between 700 and 800 million barrels of oil, are highlighted and evaluated in terms of their importance to Canada's goal of oil self-sufficiency. Technical details of the Amauligak drilling operation are included. (Illustrations of the slides referred to in the text are not included.)

conferences / Gulf / Beaufort Sea / Amauligak / hydrocarbon reserves / exploration / technology / BeauDril / Molikpaq

C 63 "Increased Power and Size in Arctic Boat Future."
Peter G. Noble and James M. Duerr.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 109-111.

622.182 82 Har 1985

As offshore hydrocarbon exploration and production activities increase in harsh environments, such as the Beaufort and Bering Seas, highly capable offshore supply boats are becoming an integral part of the drilling systems. This article reviews the role played by vessels for towing, supply purposes, fire protection, anchor handling and ice-breaking. The design features of vessels operating in arctic conditions are examined and their potential increased use in the future is discussed.

drilling, offshore / Beaufort Sea / Bering Sea / ice-breaking vessels / ships / safety measures / operations / transportation, marine / arctic conditions / exploration

C 64 "Industry's Future Direction."
J. Hnatiuk.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 206-210.

333.823 05 Arc 1983

This paper outlines past and possible future offshore activity during the eighties. Partly in view of the cancelled heavy oil and oil sands mega-projects, the author considers that frontier oil development is becoming an important key to energy self-sufficiency in Canada. Current drilling projects being undertaken by Esso and Gulf in the Beaufort Sea are reviewed briefly, and the potential of further projects at Tarsiut, the Arctic Islands and the Davis Strait are evaluated.

workshops / drilling, offshore / Beaufort Sea / Tarsiut / Arctic Islands / Davis Strait, N.W.T. / Esso / Gulf / northern energy development / drillships / caissons / exploration / CPA / APOA / EPOA

C 65 INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., MAY 4-8, 1986.
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986. 2 vol.

380.509 11 IPTC

The proceedings of the 1986 International Polar Transportation Conference are presented in this two volume set. The texts of addresses on topics related to the design and operation of Arctic transportation systems and equipment are reprinted. Many addresses are illustrated and most include lists of references.

conferences / transportation / transportation, air / transportation, marine / ice, sea / ice-breaking vessels / technology / engineering / Arctic / helicopters / aircraft

C 66 "Issungnak - Esso Resources' Largest Artificial Island."
Charles T. Williams.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD), [TEXTS OF PAPERS PRESENTED]. EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

Issungnak, the 15th and largest artificial drilling island built by Esso [to September 1981] is located in the Beaufort area just north of the 70° latitude. This paper discusses the feasibility of artificial islands for drilling, island construction, maintenance, and Esso's drilling program. Two wells drilled from Issungnak are focused upon and the author identifies the factors considered in the economic feasibility of artificial islands - these are water depth, the short working season (mid-July to mid-October), safety, capital investment and technology.

Issungnak / artificial islands / Beaufort Sea / drilling, offshore / oil well design / construction / Esso / technology / conferences

C 67 "LNG Transportation From the Arctic Islands."
R.A. Dick.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 158-162.

380.5 Nor

This paper discusses the feasibility of shipping liquified natural gas (LNG) from Arctic locations to southern markets using conventional LNG containment systems in ice-breaking tankers. The author views this system as a practical and economic alternative to pipeline transportation methods. Research into ship design for Arctic operations is discussed and it is noted that the containment system selected for use in these tankers must provide isolation of the LNG tank from the vibrations and stresses in the ship's hull caused by ice-breaking operations.

conferences / transportation, marine / tankers / LNG / ice-breaking vessels / Arctic / technology

C 68 MACKENZIE DELTA-BEAUFORT SEA EXPLORATION AGREEMENTS. CANADIAN BENEFITS ANNUAL REPORT 1982, 1983, 1984.
Esso Resources Canada Limited.
s.l. : Esso Resources Canada Limited, 1982-1984. various pag.

330.971 Ess

These Canadian benefits annual reports are provided in response to the Canada Benefits Program commitment, in support of the exploration agreements between Esso and the Canadian Oil and Gas Lands Administration (COGLA). The reports summarize Esso's actions and results in achieving Canadian and northern benefits from its exploration activities during each year, quantitatively and qualitatively. As well, Esso's performance against the commitments for Canadian industrial benefits, employment and training, and northern benefits is measured. The company's exploration activities and financial outlook are updated and socio-economic considerations of its operations are discussed.

Canadian content / Esso / COGLA / northern energy development / employment / training / exploration / Beaufort Sea / socio-economic aspects / financing

C 69 MACKENZIE DELTA/BEAUFORT SEA 1985 OFFSHORE CONSTRUCTION INFORMATION BOOKLET.
Esso Resources Canada Limited.
s.l. : s.n., n.d. n.p.

PAM 1985-60

Designed as a reference guide for visitors to Esso's Beaufort Sea operation, this brochure briefly summarizes the company's 1985 construction program. The history of Esso's involvement in the Beaufort Sea, oil and gas exploration techniques, Canada and Northern Benefits Programs, and safety and environmental considerations are outlined. There are many coloured illustrations and an explanation of Esso's role in the consortium of 12 companies exploring for oil and natural gas in the Arctic is included.

Esso / Beaufort Sea / exploration / Canadian content / artificial islands / caisson retained islands / technology / safety measures / environmental protection / construction / drilling, offshore

C 70 "'Making the Frontiers Conventional' - Keynote Address."
Ian R. Smyth.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. 2-9.

333.823 05 Arc 1985

This address presents an overview of the theme of the May 1985 workshop sponsored by the Arctic Petroleum Operators' Association and the Canadian Petroleum Association-Offshore Operators' Division. The speaker defines a conventional production area as one for which well-established technology exists to explore, produce, and market hydrocarbons. Environmental considerations, finance, and regulations are looked at and while the speaker offers his thoughts about what conventional oil and gas production means to Alberta, he also offers his opinion that the frontier areas will soon qualify as conventional production areas.

hydrocarbon production / Alberta / natural gas / regulations / financing / technology / Arctic Islands / Norman Wells, N.W.T. / Beaufort Sea / environmental assessment / APOA / CPA-OOD / Canadian content / workshops

C 71 MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee (CARC), 1979. 271 pp.

330.971 9 Mar

This volume contains texts of addresses and summaries of discussions from the 1979 Canadian Arctic Resources Committee symposium on marine transportation and high arctic development. A list of registrants is appended.

conferences / CARC / transportation, marine / shipping / northern energy development / exploration / regulations / Arctic / hydrocarbon production

C 72 "Molikpaq: The First Move."
Dorothy Greenidge.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
9 pp.

665.502 8 Arc 1986

Gulf Canada, as part of its hydrocarbon exploration program in the Beaufort Sea, has constructed a steel bottom-founded drilling platform - Molikpaq - which is a caisson-retained island capable of drilling in water depths to 40 meters, year round. Molikpaq is designed to be moved, as a single unit, to any drilling location but this is an operation requiring careful planning and coordination of many special functions. This paper describes Molikpaq's first move, from the Tarsiut location to the Amauligak location, which took place over seven days in September 1985 in reportedly the worst summer ice season in several years.

conferences / Gulf / exploration / Beaufort Sea / drilling, offshore / Molikpaq / caisson retained islands / Tarsiut / Amauligak / ice, sea / storms / steel structures / arctic mobile drilling structure

C 73 "Mooring and Anchoring in Ice-Infested Waters."
D.G. Owen and G.H. Smith.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [vol. 1]
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 424-429.

620.411 3 Off

The integrity of moorings and anchorages is a vital element in offshore production. In ice-affected areas they need special consideration because of the high loads imposed by ice and the unusual characteristics of the seabed. This paper examines the potential role of moorings for structures in ice-infested waters and identifies the need for research in specific areas.

conferences / ice, sea / oil rigs / steel structures / drilling, offshore / operations / ice / technology

C 74 "Multi-modal Transportation Systems."
Ross A. Walker.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 123-125.

380.5 Nor

This paper presents a summary of various multi-modal transportation systems in operation in northern Canada and Alaska. The author briefly reviews the background to the "Arctic Oil and Gas by Rail" report which studied the technical feasibility and cost of transporting oil and liquified natural gas (LNG) from Prudhoe Bay, via the Mackenzie Delta, by rail. Successful multi-modal operations described include the White Pass and Yukon Route and CN Rail barge operations to Alaska.

conferences / transportation / railways / transportation, marine / Arctic / Alaska / Prudhoe Bay, Alaska / Mackenzie Delta, N.W.T. / operations / White Pass and Yukon Railway

C 75 "The Navarin Challenge - Chinook Helicopters in the Bering Sea."
R.L. Larew.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 2].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 452-461.

380.509 11 IPTC

The author of this paper describes the preparation, planning and operational stages of a helicopter transportation system for oil companies exploring in the Bering Sea. Amoco, Exxon, Shell and Arco entered into a shared agreement, as far as contracting the helicopters and building the necessary support facilities, and this agreement is outlined here. The number of flights, general use of the helicopters, the impact of weather conditions and the technical specifications of the helicopters are detailed and photographs are provided.

conferences / transportation, air / helicopters / Bering Sea / Amoco / Exxon / Shell / Arco / operations / exploration / technology

C 76 "The Need for Arctic-oriented R and D in the Canadian Arctic."
G.R. Harrison.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC, MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee (CARC), 1979.
pp. 45-58.

330.971 9 Mar

This author suggests there are two keys to safe and timely development of the Arctic: 1) vigorous oil and gas exploration; and 2) development of an arctic marine technology through research and development, emphasizing field experimentation and pilot projects. Dome Petroleum's experiences in the Beaufort Sea are discussed, including the feasibility of transporting oil by pipeline and ice-breaking carrier. Several areas requiring intensified research and development are identified - optimum design characteristics and performance expectations for ice-breaking vessels; techniques which give high resolution measurement of ice properties and ship traffic conditions; practical field methods to break up high-strength ice-forms; improved understanding of the effect of oil in Arctic waters; and improved systems for oilspill clean-up in ice-covered waters.

conferences / CARC / ice, sea / Dome / Beaufort Sea / transportation / tankers / pipelines / pollution, oil / oil spill research / Arctic / northern energy development / ice-breaking vessels / ice islands / technology / oil spill countermeasures / exploration

C 77 1986 ENERGY STATISTICS SOURCEBOOK.
PennWell Publishing Co.
Tulsa, Oklahoma : PennWell Publishing Co., 1986. 418 pp.

333.790 212 OGJ

This volume presents statistical data covering exploration, production, reserves, refining, stocks (inventory), imports and exports, demand and consumption, price, and transportation relative to the oil, gas and other energy industries. Most of the information is presented in tabular format, together with some graphs. There is an index, glossary and list of abbreviations.

statistics / exploration / hydrocarbon production / hydrocarbon reserves / transportation / oil companies / coal / electricity / nuclear power / natural gas / energy requirements / energy costs

C 78 "Norman Wells Expansion Project."
James Deyell.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. 22 pp.

622.182 82 CODD 1983

This speaker discusses Esso Resources Canada Limited's plans for expanding the capabity of the Norman Wells oilfield from 475 to 4000 cubic meters per day. The expansion includes drilling over 150 new wells, constructing six artificial islands and a central processing plant. Although Esso places emphasis on using existing oil field technology to minimize risk, the author notes that the project presents some unique challenges because most of the oil-bearing reservoir is located directly under the Mackenzie River and because the project site is in a culturally and environmentally sensitive remote location that has a harsh climate.

Esso / Norman Wells, N.W.T. / oil wells / artificial islands / technology / operations / Mackenzie River / socio-economic aspects / environmental assessment / drilling / drilling, offshore / hydrocarbon production / engineering / conferences

C 79 NORMAN WELLS TO ZAMA PIPELINE. HAZARDOUS MATERIALS CONTINGENCY PLAN.
Interprovincial Pipe Line (NW) Ltd.
s.l. : Interprovincial Pipe Line (NW) Ltd., 1985. various pag.

665.744 Inte

Several materials that could be used in operation or maintenance of the Norman Wells to Zama pipeline represent a potential health or safety hazard. This manual provides safety information for each potentially hazardous material including product identification, emergency measures, environmental protection measures and the emergency telephone number of the product manufacturers. Lists of emergency notification contacts, authorities and equipment locations are also provided.

Norman Wells, N.W.T. / Alberta / pipeline hazards / pipelines / Interprovincial Pipelines / safety measures / safety equipment / oil spills

C 80 "Offshore and Remote Medicine."
David Chisholm and Charlotte MacDonald.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Operators' Division (CPA-OOD), 1984. pp. 82-84.

333.823 05 Arc 1984

The authors of this paper describe how Shell Canada complies with government guidelines regarding health and safety for employees at offshore and remote locations. Systems to cope with ongoing health services for rig and support vessel workers are outlined, as well as procedures which would apply should an evacuation be required.

health care / Shell / oil rigs / drilling, offshore / regulations / training / safety measures / government / workshops / CPA-OOD / APOA

C 81 "Offshore and Remote Medicine: Cold Water Survival."
Don Johnson.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 84-85.

333.823 05 Arc 1984

In this brief paper the author, who is a medical doctor, discusses survival times in cold water and pre-existing medical conditions and their effect on survival. With the use of charts, predicted survival times and the increase in breathing rate upon immersion in cold water are shown.

safety measures / health care / training / arctic conditions / oil rigs / aircraft requirements / hypothermia / workshops

C 82 "Offshore and Remote Medicine: Occupational Health and Safety Support in Offshore and Remote Areas - A Brief Overview."
John Cowell.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 79-81.

333.823 05 Arc 1984

This paper covers basic principles for the provision of occupational health and safety support for individuals in offshore and remote areas. Emphasis is placed on two main areas - the need for full coordination between the various professions in occupational health and safety (for example, doctors, nurses, medics, occupational hygienists) and the unique features apparent in the provision of health services in remote areas.

safety measures / health care / drilling, offshore / oil rigs / training / regulations / COGLA / CPA-OOD / disease / workshops / APOA

C 83 "Offshore Emergency Response/Contingency Plans."
C.A. Bonke.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 99-101.

333.823 05 Arc 1983

Speaking on behalf of the Eastcoast Petroleum Operators' Association (EPOA) and Arctic Petroleum Operators' Association (APOA) Offshore Safety Task Force, this author emphasizes the need for all offshore operators to have an effective emergency response plan to assist in saving lives and property in the event of an emergency. In this review of the Task Force's Study of existing plans, completeness, effectiveness, compatibility and ability of plans to be understood and implemented are examined and the author briefly comments on each of these components.

workshops / EPOA / APOA / safety measures / training / drilling, offshore / CPA

C 84 "Offshore Safety Programs During Exploratory Drilling Operations."
F.C. Smith.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983. pp. 93-98.

333.823 05 Arc 1983

The author of this paper explains that the role of a safety program, with reference to safety in marine emergencies offshore, is largely to maintain the awareness of difficulties that may be present in an extreme situation, and to keep the personnel involved familiar with the equipment and procedures necessary to minimize the losses that may occur. In this instance, the conservation of human life and the prevention of injuries is the primary consideration. The results of a questionnaire, concerning safety programs for offshore workers, which had been circulated to operating and contracting companies, are summarized in this presentation. The frequency and types of safety drills held are noted and areas of strength and weakness in performance and procedures are examined.

workshops / safety measures / drilling, offshore / fire / explosions / CPA / APOA / EPOA

C 85 "Offshore Safety Task Force Report."
Bill Rama.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA), 1984. pp. 68-73.

333.823 05 Arc 1984

Presented mainly in tabular format, this paper highlights the composition of the Offshore Safety Task Force, the topics studied and its conclusions and recommendations. Specifically, the report examines safety, training programs, emergency response plans and a review and implementation process for approving safety standards in the offshore oil industry. Although the Task Force focuses on the industry's activities and procedures, government activities and requirements are considered where pertinent. The Task Force Study is a joint effort by the Eastcoast Petroleum Operators' Association (EPOA) and the Arctic Petroleum Operators' Association (APOA).

safety measures / regulations / drilling, offshore / oil rigs / exploration / technology / government / APOA / CPA-OOD / COGLA / regulatory agencies / training / EPOA / arctic conditions / workshops

C 86 THE OIL AND GAS DIRECTORY; REGIONAL AND WORLDWIDE, 1986-87.
17th edition.
Houston, Texas : Oil and Gas Directory, n.d. 493 pp.

Ref 338.202 5 Oil

Published annually, this directory provides a comprehensive listing of all companies and individuals directly connected with, or engaged in, petroleum exploration, drilling and production, worldwide.

directories / drilling / drilling, offshore / hydrocarbon production / oil companies / exploration / construction / transportation / operations

C 87 "Oil and Gas Fields in the East Coast and Arctic Basins of Canada."
Robert A. Meneley.
In FUTURE PETROLEUM PROVINCES OF THE WORLD. PROCEEDINGS OF THE WALLACE E. PRATT MEMORIAL CONFERENCE, PHOENIX, DECEMBER 1984.
edited by Michel T. Halbouty.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1986. pp. 143-176.

553.282 Wal

The east coast and Arctic basins of Canada have been subjected to serious hydrocarbon exploration for over 20 years and five of the most thoroughly explored areas are the Beaufort, Sverdrup, Labrador, East Newfoundland and Scotian basins. In this paper, examples of discoveries from each of these basins illustrate the factors that control the accumulation of hydrocarbons. As well, the authors discuss the harsh physical environment in these basins and the high costs involved in developing the resources located there. The authors contend that the future role that these basins will play in supplying hydrocarbons will depend on their ability to compete economically with the alternative sources of hydrocarbon supplies, particularly the oil sands resources of western Canada.

Arctic / hydrocarbon reserves / exploration / Beaufort Sea / Sverdrup Basin, N.W.T. / Labrador / Newfoundland / Nova Scotia / socio-economic aspects / geology / sedimentology / technology / conferences

C 88 "On Pipelines for the Arctic Offshore and Considerations About Design, Construction and Operations."
M.L. Fernandez.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986. n.p.

665.502 8 Arc 1986

From operating experience of marine equipment utilized in the Beaufort Sea, from current understanding of the Arctic environment and from existing knowledge of offshore pipelines, this author states that it is reasonable to assume that offshore Arctic pipelines can be safely and economically built and operated. Concerns from regulatory bodies and economic constraints can be met with proper engineering practices, including planning and management. This paper provides an overview of these aspects with a discussion of concerns considered to be most important.

conferences / Beaufort Sea / Arctic / pipelines, offshore / pipeline costs / pipeline construction / regulations / operations / engineering

C 89 OUR PETROLEUM CHALLENGE.
Petroleum Resources Communication Foundation.
3rd edition.
Calgary, Alberta : Petroleum Resources Communication Foundation, 1985. 63 pp.

622.182 8 Pet

Written for the general reader, this book provides information and facts about exploration, production, transportation and other activities and functions related to crude oil and natural gas in Canada. The evolution of the oil and gas industries, exploration geology, drilling, processing, refining and petrochemical by-products are among the topics discussed. The challenges of accessing unconventional sources of oil and gas in the north and east coast offshore areas, and heavy oil and oil sands developments in Alberta, are discussed.

hydrocarbon production / exploration / geology / drilling / drilling, offshore / northern energy development / Alberta / petroleum industry / petrochemicals / natural gas / transportation / Atlantic Ocean / Beaufort Sea

C 90 "Overview of Arctic Marine Activities of the Canadian Marine Transportation Administration."
George C. Leask.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee (CARC), 1979.
pp. 30-40.

330.971 9 Mar

The Canadian Marine Transportation Administration focuses on the necessity of providing government marine services for Arctic projects and on trying to ensure that Canadian shipowners are given maximum consideration. Exploration for gas and oil in the Beaufort Sea, and exploration, development and transportation of hydrocarbons from the Sverdrup area are the major Arctic activities requiring marine services, but services in support of pipeline construction, repair and pollution containment are also touched on. Ice-breaking, navigation systems, search and rescue and safety regulations are discussed and the federal government's transportation policy is briefly outlined.

conferences / CARC / transportation, marine / hydrocarbon production / LNG / pipelines / tankers / shipping / government / regulations / Beaufort Sea / Sverdrup Basin, N.W.T. / exploration / ice-breaking vessels / Canadian content / Canadian Marine Transportation Administration / navigation

C 91 "Overview of Offshore Drilling and Production Systems in the Arctic Islands."
Gordon Hood.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD), [TEXTS OF PAPERS PRESENTED]. EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

This speaker represents Panarctic Oils Ltd., and it is Panarctic's operation in the Arctic Islands (Sverdrup Basin) that is the focus of this paper. An overview of eight years of offshore drilling and production systems is presented. Photographs are used for illustrative purposes.

Arctic Islands / Panarctic Oils / drilling, offshore / exploration / operations / Sverdrup Basin, N.W.T. / hydrocarbon production / transportation / conferences

C 92 "Paramedical Concerns in Arctic Offshore Safety."
D.A. MacLachlan.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986: SAFETY SESSION.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
6 pp.

665.502 8 Arc 1986

This paper presents a view of the types, names, and qualifications of various safety/health care workers and discusses recent legislation in Alberta and the Northwest Territories controlling educational standards and maintenance of licensure. Emphasis is placed on the need for careful scrutiny of the qualifications of paramedical personnel and the medical care they offer, with particular reference to remote areas and the medical and safety aspects of diving.

conferences / health care / training / education / Alberta / Northwest Territories / diving / drilling, offshore / safety measures / legislation

C 93 A PIPELINE CORRIDOR FOR THE YUKON COASTAL PLAIN.
Dome Petroleum Ltd.
s.l. : Dome Petroleum Limited, 1978. 8 pp.

PAM 1978-172

In this report, Dome Petroleum Limited makes recommendations which would allow for a pipeline corridor along the Yukon coastal plain, part of which has been specifically dedicated towards an unoccupied wilderness park under an agreement between the Department of Indian Affairs and Northern Development (DIAND) and the Inuvialuit of the Mackenzie Delta region. Dome explains its need for transportation routes from oil and gas exploration sites in the Beaufort Sea and notes that the company may well require land pipelines in addition to a marine transportation system. A short list of references is provided.

Dome / pipelines / pipeline routes / Yukon Territory / Yukon coastal plain / environmental protection / DIAND / Inuvialuit / Mackenzie Delta, N.W.T. / transportation / exploration / Beaufort Sea

C 94 THE POLAR GAS PROJECT; AN OVERVIEW.
Polargas.
Toronto, Ontario : Polar Gas Project, 1978. 38 pp.

330.971 Polo

The Polar Gas Project was formed in 1972, to find the best means of transporting the natural gas discovered in Canada's Arctic Islands to southern markets in a manner that would be economically, environmentally and socially acceptable. This brochure, written for the general reader, provides an overview of the Polar Gas Project proposal, for a natural gas pipeline system, including the route, technology, financing and socio-economic impacts on the people and the environment in the areas through which the proposed pipeline would pass. The brochure is illustrated in colour throughout.

natural gas / Arctic Islands / pipeline routes / pipeline construction / pipeline financing / Polar Gas / environmental impact / socio-economic impacts / technology / northern energy development

C 95 PRELIMINARY ENGINEERING REPORT ON MOBILE ARCTIC ISLANDS (MAI) FOR DRILLING AND PRODUCTION.
Albery, Pullerits, Dickson & Associates.
Toronto, Ontario : Albery, Pullerits, Dickson & Associates, 1983. various pag.

627.98 APD

This report examines the capabilities of the mobile arctic island (MAI) as a drilling and production platform for use in the Beaufort Sea. The environmental conditions prevalent in the area, bathymetry and seabed conditions are reviewed. Operational requirements are addressed briefly before design criteria and structural considerations are discussed in more detail. Design drawings are included and estimates for capital costs involved for construction and operation are given.

MAI / drilling, offshore / Beaufort Sea / bathymetry / wind / waves / ice, sea / ice scour / financing / exploration / operations / construction

C 96 A PRELIMINARY EVALUATION OF THE KING POINT REGION: YEAR-ROUND HARBOUR AND MARINE TERMINAL POTENTIAL.
Dome Petroleum Limited.
[Calgary, Alberta] : Dome Petroleum Limited, 1979. 31 pp.

627.35 Dom

This document describes the potential of King Point, Yukon, as a deep draft harbour and year-round base of operations for Dome's activities in the Beaufort Sea. As well, the use of an adjacent area as a marine terminal for liquified natural gas (LNG) is addressed. Dome's rationale for selecting King Point as the preferred site is set out in this report which reviews the proposed short and long term development plans as well as describing the climate, ice conditions, hydrographic conditions and geology of the area. Maps and diagrams are included.

Dome / King Point, Yukon / marine terminals / marine support base / LNG / climatology / hydrology / geology / ice / ice, sea / Beaufort Sea

C 97 PRESENTATION TO THE EXECUTIVE COUNCIL-CABINET OF THE YUKON TERRITORY.
Polar Gas Ltd.
s.l. : Polar Gas Ltd., 1984. n.p.

330.971 Pola

This volume contains paper copies of a slide presentation made by Polar Gas to the Yukon Territorial Government (YTG) in support of a proposed transportation system connecting natural gas reserves from Arctic frontier areas to southern markets. A short presentation showing historical highlights of this proposed project is included, as are illustrations showing supply and demand figures, natural gas discoveries and present and proposed pipeline routes. The scope of the project, financial and socio-economic, is outlined.

Polar Gas / YTG / natural gas / pipeline routes / pipelines / pipeline financing / Arctic / natural gas requirements / employment / financing / socio-economic impacts / Arctic Islands / income and wages

C 98 "Problems Related to the Registration in Western Canada of Foreign Limited Partnerships and the Ownership by such Partnerships of Interests in Oil and Gas Leases Issued Pursuant to Section 55 of the Canada Oil and Gas Land Regulations."
John H.W. Rathwell.
In THE CANADIAN ARCTIC AND NORTHERN REGIONS AND OTHER SELECTED MATTERS OF CURRENT INTEREST TO THE OIL AND GAS INDUSTRY: PETROLEUM LAW SUPPLEMENT.
Alberta Law Review.
edited by Maurice J. Sychuk.
Alberta Law Review: Special Issue, Vol. x No. 3, 1972.
Edmonton, Alberta : University of Edmonton, Faculty of Law, 1972.
pp. 477-486.

343.077 2 Alb

This article analyzes the practical problems of drilling funds - organizations, formed by oil and gas operators, which raise funds for use in drilling and exploration through the sale to the public of interests in limited partnerships. The article discusses the question of registering a fund formed in the United States under Canadian oil and gas jurisdictions, the number of members that the drilling fund partnership may have and the name it may use. As well, the question of whether or not a drilling fund qualifies under section 55 of the Canada Oil and Gas Land Regulations, in respect to ownership of leases by drilling fund partnerships, is discussed.

drilling funds / U.S.A. / foreign ownership / regulations / government / legislation / drilling / exploration / hydrocarbon production / natural gas / legal aspects / resource-leasing

C 99 "A Project for 1985 Oil Production from the Arctic Islands."
L.J. Franklin.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This paper describes the physical installation for, and the economics of, the Bent Horn Project, scheduled to be on stream by September 1985. A project of Panarctic Oils, the Bent Horn field lies in the Arctic Islands, and is expected to produce approximately 100,000 barrels of oil per year initially, with the potential of expansion to 300,000 barrels per year after observations and evaluations over the first few years. The author describes the geology of the area, the reservoir, and plans for production, storage and transportation systems.

workshops / Panarctic Oils / hydrocarbon production / Bent Horn Project / Arctic Islands / tankers / storage / oil cargo systems / transportation, marine

C 100 "Reducing the Risks of the Frontier."
D. McDougall.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. E13-E20.

333.823 05 Arc 1985

The author of this paper is a medical doctor who represents the Offshore and Remote Medicine Committee. The paper discusses the prevention of disease and injury and provides a short summary of the Committee's activities during the preceding year. Emphasis is placed on planning, training and preventive measures as the keys to minimizing the level of risk to the remote and offshore worker.

safety measures / health care / arctic conditions / drilling, offshore / socio-economic aspects / alcohol / oil rigs / regulations / disease / workshops

C 101 REPORT ON GULF'S BEAUFORT DRILLING SYSTEM.
Gulf Canada Resources Inc.
s.l. : Gulf Canada Resources Inc., 1982. 9 pp.

PAM 1982-36

After presenting a brief overview of Gulf's activities in the search for oil and gas in Canada's western Arctic since the 1960s, this brochure reviews Gulf's development of offshore drilling systems which can withstand the forces of moving ice and thus allow longer operational periods in the Beaufort Sea each year. Two units are discussed - the (floating) conical drill unit and the mobile arctic caisson - including their design, construction and operation in ice-infested seas. In a wider view of Gulf's Beaufort Sea drilling program, this brochure discusses the utilization of supply vessels and ice-breaking vessels, and the socio-economic impacts of Gulf's operations on the people in the northern communities in the exploration areas.

Gulf / drilling, offshore / exploration / ice, sea / Beaufort Sea / arctic mobile drilling structure / caissons / ice-breaking vessels / socio-economic impacts / marine support base / employment

C 102 A REVIEW OF ESSO RESOURCES WESTERN ARCTIC EXPERIENCE AND THOUGHTS REGARDING RESOURCE DEVELOPMENT IN THIS AREA.
Esso Resources Canada Limited.
Calgary, Alberta : Esso Resources Canada Limited, 1982. n.p.

333.823 15 Ess

This volume contains Esso Resources Canada Limited's submission to the Special Senate Committee on the Northern Pipeline. The presentation, which is accompanied by paper copies of slides, gives some background to Esso's historical role in the Western Arctic and describes what the company has learned relative to operating in that unique physical and social environment, with specific reference to Norman Wells and the Beaufort region. Esso's reserve assessment is reviewed and an overview of current exploration plans is given, followed by presentation of Esso's development schedule scenarios for the Beaufort area. The company's views relative to the effectiveness of the approval process for Beaufort development is provided and the presentation concludes with a summary of salient points from the submission.

Esso / government / Arctic / socio-economic impacts / exploration / operations / regulations / Beaufort Sea / Norman Wells, N.W.T. / technology / northern energy development / transportation / drilling / drilling, offshore / environmental impact / Canadian content

C 103 "Review of Research on Polar Class Icebreakers to Develop Arctic Ship Design Guidelines."
V. Rinehart, F. Seibold and R. Voelker.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 19-38.

380.509 11 IPTC

The development and marketing of Arctic resources is dependent upon adequate transportation facilities, including marine transportation systems. This paper discusses the organization, conduct and results of studies of ice conditions and ship performance along potential Arctic commercial routes, in the Bering, Chukchi and Beaufort Seas, for both summer and winter. The intent of the studies is to provide data for use in developing guidelines for commercial vessels which can operate safely in all seasons in the Arctic. This paper is illustrated.

conferences / Arctic / transportation, marine / ice / ice, sea / icing / ice-breaking vessels / tankers / Bering Sea / Chukchi Sea / Beaufort Sea / technology / engineering / ice ridges / remote sensing / safety equipment

C 104 [REVIEW OF THE BEAUFORT SEA DRILLING PROGRAM. 1978, 1980, 1981] [TITLE VARIES SLIGHTLY.]
Canada. Department of Indian Affairs and Northern Development, Northern Affairs Program.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1978, 1980, 1981. various pag.

627.75 DIAND

As directed by Cabinet, Dome Petroleum's Beaufort Sea drilling program, conducted by Canmar, is subjected to an annual comprehensive review. This annual report, prepared for the Department of Indian Affairs and Northern Development (DIAND), informs Cabinet of the findings following a review of technical operations, marine management, environmental impact and social-economic-cultural matters.

Dome / Canmar / government / DIAND / Beaufort Sea / drilling, offshore / exploration / operations / environmental impact / socio-economic impacts

C 105 "A Review of the Drilling Activities on the Amauligak Structure Using the BeauDril Molikpaq Vessel."
T.J. Thomas and G.A. Pidcock.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
12 pp.

665.502 8 Arc 1986

This paper outlines various aspects regarding the planning and execution of the drilling program, utilizing BeauDril's bottom founded Molikpaq drilling vessel, in the Amauligak location in the Beaufort Sea. Special reference is made to those areas of new and unusual engineering techniques. The text of this technical paper is supplemented by a map, diagrams and a table.

conferences / drilling, offshore / drillships / Molikpaq / Amauligak / Beaufort Sea / engineering / technology / BeauDril

C 106 "A Review of the National Energy Board Report on Gas Export, August 1970."
D.W. MacFarlane and G.A. Connell.
In THE CANADIAN ARCTIC AND NORTHERN REGIONS AND OTHER SELECTED MATTERS OF CURRENT INTEREST TO THE OIL AND GAS INDUSTRY: PETROLEUM LAW SUPPLEMENT.
Alberta Law Review.
edited by Maurice J. Sychuk.
Alberta Law Review: Special Issue, vol. x No. 3, 1972.
Edmonton, Alberta : University of Edmonton, Faculty of Law, 1972.
pp. 523-530.

343.077 2 Alb

This paper deals with the National Energy Board's (NEB) disposition of applications to export gas from Canada. The authors tabulate the total quantity of gas and number of years for which export licences were sought and the quantity and term which the Board approved. The NEB's surplus calculation formula is examined section by section: supply (total established reserves, deferred reserves and reserves beyond economic reach); domestic supply requirements; future surplus; border price.

NEB / government / marketing / exports / natural gas / natural gas requirements

C 107 "Risk Management and Insurance Concerns."
J.M. Gordon.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
10 pp.

665.502 8 Arc 1986

This author opines that while insurance costs generally are increasing, coverage and quality are decreasing. Insurance for frontier exploration activity has been affected to the extent that insurance premiums may represent ten per cent of offshore drilling expense yet, in the event of loss, coverage rarely provides the protection expected. This paper reviews these developments, in both cause and effect, specifically as they apply to the Arctic.

conferences / risk management / insurance / exploration / Arctic / drilling, offshore

C 108 "Risk Management in the Offshore, Do We Have It Right?"
Bill Pomfret.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986: SAFETY SESSION.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
19 pp.

665.502 8 Arc 1986

This speaker presents an overview of the risk management process and its interface with the ever-increasing costs of offshore insurance. The emphasis is on the one main goal of risk management - to protect corporate assets and profits by reducing the potential for loss before it occurs. For the purposes of this paper, risk is defined as any situation arising out of an organization's activities which can give rise to loss, injury, damage, liability or impairment of growth in social, moral or financial terms. The author argues that offshore operators in north America do not "have it right" and presents case histories in support of this as well as some basic roles of risk management.

conferences / risk management / insurance / drilling, offshore / operations / safety measures

C 109 "Safety and Life Saving Equipment."
Scott Little.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983. pp. 83-86.

333.823 05 Arc 1983

This paper highlights safety and life saving concerns, relative to the marine environment as viewed by the Eastcoast Petroleum Operators' Association (EPOA) and Arctic Petroleum Operators' Association (APOA) Offshore Safety Task Force. A variety of equipment available for use by offshore operators is listed. Specifically, evacuation methods and systems are discussed and the capabilities of immersion suits for increasing survival in an emergency situation are examined. However, the need for further investigation of equipment and techniques is expressed and the Task Force's final report is expected to address this matter.

workshops / EPOA / APOA / drilling, offshore / evacuation / safety measures / CPA

C 110 SAILING DIRECTIONS - ARCTIC CANADA. VOL. III.
Canada. Department of Fisheries and Oceans.
4th edition.
Ottawa, Ontario : Canada. Department of Fisheries and Oceans, 1986.
255 pp.

917.199 Can

This volume amplifies charted details and contains information needed for safe navigation, which is not available from Canadian charts or other hydrographic publications. Prepared by the Canadian Hydrographic Service (CHS) of the Department of Fisheries and Oceans (DFO) this volume covers the following locations: Beaufort Sea (east part); Amundsen Gulf; Dolphin and Union Strait; Coronation Gulf; Dease Strait; Queen Maud Gulf; Simpson Strait to Larsen Sound; Victoria Strait to Parry Channel; Parry Channel (west part); Parry Islands; and Sverdrup Islands. In addition to information on tides, water levels and currents, potential hazards such as pingos, artificial islands, caisson retained islands, and drilling vessels related to hydrocarbon exploration are located. The volume is indexed and a short glossary of Inuit words is included.

CHS / DFO / navigation / shipping / Beaufort Sea / Amundsen Gulf, N.W.T. / Dolphin and Union Strait, N.W.T. / Coronation Gulf, N.W.T. / Dease Strait, N.W.T. / Queen Maud Gulf, N.W.T. / Simpson Strait, N.W.T. / Larsen Sound, N.W.T. / hydrography / Victoria Strait, N.W.T. / Parry Channel, N.W.T. / Parry Islands, N.W.T. / Sverdrup Islands, N.W.T. / tidal currents / water levels / pingos / meteorology / artificial islands / caisson retained islands / drillships / Inuit / communications

C 111 SEISMIC STRATIGRAPHY - APPLICATIONS TO HYDROCARBON EXPLORATION.
edited by Charles E. Payton.
Tulsa, Oklahoma : American Association of Petroleum Geologists, 1977.
516 pp.

622.182 82 Pay

This technical volume describes seismic stratigraphy as one of the fastest growing geoscience disciplines. While the basic concepts of seismic response were explained over 20 years ago, the routine use of these concepts for interpreting hydrocarbon reservoir conditions required modern electronic technology. The author describes the principles of seismic stratigraphy, the qualitative approach to stratigraphic interpretations and also presents techniques and examples of modeling. This book is illustrated and a keyword index is provided.

hydrocarbon reserves / seismic exploration / stratigraphy / technology / geology / exploration

C 112 "Selected Cases, Legislation and Developments in Oil and Gas Law."
Rowland J. Harrison.
In THE CANADIAN ARCTIC AND NORTHERN REGIONS AND OTHER SELECTED MATTERS OF CURRENT INTEREST TO THE OIL AND GAS INDUSTRY: PETROLEUM LAW SUPPLEMENT.
edited by Maurice J. Sychuk.
Alberta Law Review: Special Issue, Vol. x No. 3, 1972.
Edmonton, Alberta : University of Edmonton, Faculty of Law, 1972.
pp. 391-430.

343.077 2 Alb

This article concentrates its comments and discussions on two areas of current developments in oil and gas law, namely, the attitude of Canadian courts to the interpretation of the freehold petroleum and natural gas lease and the applicability of the doctrine of estoppel to a terminated petroleum and natural gas lease. Various cases are cited and legislative developments are reviewed.

legislation / legal aspects / resource-leasing / petroleum industry / natural gas / Arctic / northern energy development

C 113 "Slope Investigation and Repair - Trans-Alaska Pipeline."
Jalmer V. Alto.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineering, 1986.
pp. 450-460.

620.411 3 Col 1986

In April 1984, it was reported to the Alyeska Pipeline Service Company that a slope traversed by the Trans-Alaska Pipeline System (TAPS) was showing indications of downslope movement. This paper documents the extensive stability investigation and repair program which followed that discovery. Photographs and tables are provided and there is a short list of references.

Alyeska Pipeline Service Co. / TAPS / slope stability / Alaska / thawing / drainage / ice, ground

C 114 "Soviet Capabilities in Arctic Marine Transport."
Terence Armstrong.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC, MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee (CARC), 1979.
pp. 210-222.

330.971 9 Mar

This author uses the limited information available for the 1978 shipping season to construct a picture of Soviet Arctic marine activities. The administrative organization of the Ministry of the Merchant fleet is outlined and the Soviet ice-breaking fleet and other vessels are described. The efforts to extend the length of the shipping season are discussed as well as the pattern and estimated size of the Soviet Arctic marine operations. The author concludes by recommending Canadian study of some features of the Soviet experience in the area.

conferences / transportation, marine / Arctic / U.S.S.R. / ice-breaking vessels / shipping / technology / ice, sea / CARC

C 115 STATEMENT OF POSITION REGARDING SELECTION OF PIPE FOR THE WHITEHORSE, YUKON TO CAROLINE, ALBERTA SEGMENT OF THE FOOTHILLS PIPELINE SYSTEM.
National Energy Board.
s.l. : s.n., n.d. various pag.

330.971 NEB - SP

Foothills Pipe Lines (Yukon) Ltd. (FPL(Y)) and its associated companies applied to the National Energy Board (NEB) for authority to construct a gas pipeline from the Alaska-Yukon border along the Alaska Highway through Whitehorse to Caroline, Alberta, where the pipeline would bifurcate into two smaller diameter lines running east and west. This report documents the NEB's examination of the economic and safety aspects of relative pipeline diameter, pounds per square inch pressure and pipeline wall thickness. The NEB indicates here that it intends to include, in its general approval of pipeline specifications, approval of 56 inch diameter, 0.54 inch wall thickness, grade 70 pipe, with a maximum allowable operating pressure of 1080 pounds per square inch for the portion of the pipeline system between Whitehorse and Caroline.

FPL(Y) / NEB / Alaska / Whitehorse, Yukon / Alaska Highway / Alberta / pipeline materials / pipeline construction / pipeline hazards / pipeline testing / safety measures

C 116 "Status Report on Current Industry Research Programs: Environmental Aspects of Drill Muds in the OCS."
James P. Ray.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 166-173.

333.823 05 Arc 1983

This is a background paper for the panel discussion, at the subject workshop, on assessment of fate and effects of drilling fluids and cuttings in the marine environment. The paper provides a brief review of the numerous industry programs, either in progress or planned for the future, that relate to this topic. Although many of the programs described concern the U.S. drilling industry, the author does briefly touch on activities and research programs conducted in Canada.

workshops / ecosystems, aquatic / drilling, offshore / waste disposal / environmental impact / sedimentation / pollution, oil / U.S.A. / Continental Shelf, Alaska / CPA / APOA / EPOA

C 117 "A Survey of Methods of Waste Fluid Treatment and Disposal for Canada Offshore Drilling."
Leo Lam.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 156-161.

333.823 05 Arc 1983

This study considers the technical feasibility of treatment and disposal methods for waste drilling fluids associated with offshore drilling. It is acknowledged that any methods used must be ecologically and economically acceptable. Two main types of treatment methods are discussed - firstly, integral treatment in which waste fluid is treated as a whole, making no distinction between solid and liquid phases and, secondly, differential treatment in which the solid phase is first separated from the liquid phase and the two fractions are then treated and disposed of separately.

workshops / drilling fluids / waste disposal / drilling, offshore / pollution, oil / environmental protection / ecosystems, aquatic / technology / CPA / APOA / EPOA

C 118 SURVEY OF MINES AND ENERGY RESOURCES 1986.
The Financial Post.
s.l. : Maclean Hunter Limited, 1986. 694 pp.

Ref 338.2 Sur 1986

Published annually, this survey provides a review of the mining and energy industries in Canada, including details of the operations, management and financial status of approximately 2,900 mining and 450 energy companies. Production and reserves of oil and gas by company and industry are included.

hydrocarbon production / oil companies / natural gas / mining / operations / financing / hydrocarbon reserves / directories

C 119 "Transport of Crude Tops Arctic Production Costs."
Roger Tanner.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 85-97.

622.182 82 Har 1985

The author of this paper discusses what is identified as the biggest cost component in producing hydrocarbons from the Arctic - transportation. In this case, the transportation method discussed is tanker transportation. The attendant ice-breaking requirements and the potential tanker routes available are examined. The transportation of supplies and personnel is also discussed in this illustrated paper.

transportation, marine / tankers / ice-breaking vessels / ice / aircraft requirements / navigation / ships / Arctic

C 120 "Unauthorized Cash Calls - The Curse of Frontier Projects."
George Shaw MacMillan and Edward James Thompson.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
n.p.

665.502 8 Arc 1986

This paper reviews the early planning aspects of frontier projects that require very large amounts of money. The authors provide a practical guide and "road map" to evaluate the fiscal risk associated with venturing as a minority working interest owner. The intent is to avoid a situation where one party necessarily gives up its interest, because of a delay in getting a return on investment, thus causing financial strain for another party.

conferences / financing / project management / legal aspects

C 121 UNDER THE BEAUFORT: CANADA DRILLS IN THE ARCTIC.
Canada. Department of Indian Affairs and Northern Development.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1980. 42 pp.

351.823 88 DIAND

This illustrated brochure presents a history of hydrocarbon exploration and development in the Beaufort Sea. From the initial oil strike in 1919 at Norman Wells, to the present day operations of Canmar, the drilling technology, regulations, environmental and socio-economic aspects of northern energy development are discussed. The unique circumstances faced by operators in arctic conditions are addressed, including reference to ice and its impact on operations. A glossary of terms used in the drilling industry is provided.

exploration / operations / hydrocarbon reserves / Beaufort Sea / Norman Wells, N.W.T. / Canmar / drilling, offshore / technology / regulations / environmental impact / socio-economic impacts / northern energy development / arctic conditions / ice, sea / ice management / oil spills / pollution, oil / blowouts / drillships / DIAND

C 122 "A Unique Offshore Oil Rig Escape System."
Phil Nuytten and Ed Hauptmann.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986: SAFETY SESSION.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986. n.p.

665.502 8 Arc 1986

The concept and current state of development of a special-purpose underwater survival pod is described in this paper. The pod, which is in the very preliminary design stage, allows the crew of an offshore rig to ride out the most severe storm, or sudden emergency, in a safe environment below the surface of the ocean. The author explains that complete life support systems, communication and control are maintained throughout an emergency, for up to five days, and at any time the crew may elect to resurface for transfer to rescue vessels or otherwise operate on the surface.

conferences / safety equipment / operations / drilling, offshore / evacuation / storms / safety measures

C 123 "Update on EPOA/APOA Task Force."
N.J. Labrecque.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983. pp. 86-93.

333.823 05 Arc 1983

A study by the Eastcoast Petroleum Operators' Association (EPOA) and Arctic Petroleum Operators' Association (APOA) Offshore Safety Task Force, on the quality of safety training, is the subject of this paper. The speaker describes training in various countries around the world and discusses the extent of government regulations, the mechanism of training programs, the applicability of content and the degree to which industry is cohesive in its attitude to required training for offshore oil field personnel. Basic training programs recommended by the Task Force report are outlined.

workshops / EPOA / APOA / safety measures / training / drilling, offshore / fire / evacuation / safety equipment / hypothermia / regulations / CPA

C 124 "Use of Ice Cutters to Provide Mobility in Ice for Arctic Offshore Drilling Structures."
Richard W. Slocum.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. N1-N9.

623.812 4 Int 1984

In an effort to reduce costs and increase the overall efficiency of drilling operations in the Beaufort Sea, there has been a move away from artificial islands to various mobile reusable structures. Because of their size, these structures can presently only be moved to new drilling locations during periods of open water or light ice. This paper discusses adding ice cutting systems to the drilling units and the benefits of doing so in terms of allowing year-round movement, even through thick ice, cost saving, and increased drilling capabilities. The paper is illustrated and a short list of references is provided.

conferences / drilling, offshore / exploration / Beaufort Sea / artificial islands / arctic mobile drilling structure / caissons / ice management / ice, sea / technology / operations

C 125 "The Varying Roles of the Regulators."
I. Denness.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. E8-E12.

333.823 05 Arc 1985

The author of this paper is the Chairman of the Arctic Operators' Safety Committee (AOSC) and the activities of that committee are reviewed briefly here. The writer goes on to examine the roles of the various regulatory bodies, as well as safety and training measures and standards. Reference is made to specific accidents which have occurred and what can be learned from such incidents.

safety measures / Beaufort Sea / Arctic / regulations / Dome / Gulf / Esso / COGLA / Canadian Coast Guard / AOSC / regulatory agencies / technology / exploration / training / hydrocarbon production / drilling, offshore / workshops / CPA-OOD / APOA

C 126 WASTE TO WEALTH. A HISTORY OF GAS PROCESSING IN CANADA.
Fred Stenson.
Calgary, Alberta : Canadian Gas Processors' Association. Canadian Gas Processors' Suppliers' Association, 1985. 352 pp.

665.730 971 Ste

This book provides a comprehensive survey of the growth of gas processing in Western Canada, including its impact on the environment and the lives of people involved in the gas industry. The author covers the whole range of the industry from the early gas discoveries, in the middle of the 19th century, to the most recent trends in export markets, as well as the technological advances which have been made in concert with the development of the industry. The author provides numerous photographs and a detailed index.

natural gas / history / socio-economic impacts / technology / gas fields / natural gas transmission systems / environmental impact / socio-economic aspects

C 127 WESTERN ARCTIC MODERATE DRAFT HARBOUR.
Advisory Committee on Northern Development, Transportation Committee Steering Group on Marine Transport.
s.l. : s.n., 1977. 71 pp.

627.2 ACND

This study examines sixteen possible sites between Herschel Island and Paulatuk, on the basis of operational acceptability, hydrography, meteorology, ice regime, and environmental impact relative to the requirements for, and the cost of, development of a moderate draft (20 feet) marine facility. (The study followed Canmar's request in 1975 that the federal government dredge the approach channel to Tuktoyaktuk harbour to accommodate Canmar's drilling fleet.) This study, by the Transportation Committee Steering Group on Marine Transport, recommends that such a harbour development not take place at the present time (1977) in view of the lack of interest by operators other than Canmar, the limited potential life of such a harbour, and other related reasons.

Herschel Island, Yukon / Paulatuk, N.W.T. / Tuktoyaktuk, N.W.T. / Canmar / hydrography / meteorology / ice, sea / environmental impact / drilling, offshore / ships / marine terminals

C 128 "Winter Marine Transportation Off Alaska."
L.W. Brigham.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C., 1986. [vol. 2].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 805-819.

380.509 11 IPTC

Winter ice-breaking operations in the Bering, Chukchi and Beaufort Seas are reviewed in this paper. The power levels required by ice-breaking vessels are discussed and ice conditions are examined, with an emphasis on those conditions likely to confront ice-breakers in future operations in the north. Ice navigation skills and remotely sensed ice imagery are judged critical to safe and successful marine transportation in arctic conditions. The paper is illustrated and references are included.

conferences / ice-breaking vessels / Bering Sea / Chukchi Sea / Beaufort Sea / Alaska / arctic conditions / navigation / ice, sea / remote sensing / ice ridges / snow / transportation, marine

TECHNOLOGY

D 1 "Adfreeze Strength of Ice to Steel Pipe Piles as a Function of Temperature."
Michael L. Foster.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineering, 1986.
pp. 11-20.

620.411 3 Col 1986

This paper argues that when designing a structure that will come into contact with ice, whether it be an offshore drilling platform or a pile placed in ice-rich permafrost, it is vital to consider the magnitude of the stresses resulting from the adfreeze bonding of the ice to the structure's surface. (Adfreezing refers to the process by which one object adheres to another by the binding action of ice.) This paper documents a study conducted to determine the adfreeze bond strength between steel pipe piles and freshwater ice as a function of temperature. This very technical presentation includes diagrams and a list of references.

ice / permafrost / adfreezing / ice, ground / engineering / steel structures / conferences

D 2 "Advanced Radar Systems for Support of Arctic Marine Operations."
J.B. Mercer et al.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C. 1986. [Vol. 2].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 839-858.

380.509 11 IPTC

Several types of arctic marine operations have benefited from advances made to airborne and ship or rig mounted radars. This technical paper describes these radar systems, mainly in the context of three operations: 1) ice management support of exploratory drilling operations in the Beaufort Sea; 2) seismic vessel support in the Beaufort Sea; and 3) navigation support of the "M.V. Arctic" in the Northwest Passage.

conferences / technology / radar systems / ice management / drilling, offshore / exploration / seismic exploration / Beaufort Sea / ice-breaking vessels / ice, sea / navigation / Northwest Passage

D 3 "AMOP and the State of the Art of Oil Spill Countermeasures."
David E. Thornton.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 199-206.

333.823 05 Arc 1984

This paper first presents a brief overview of the federal government's Arctic Marine Oilspill Program (AMOP). AMOP's role is to develop oil spill countermeasures for ice-frequented waters. Most of the remainder of the paper comprises a qualitative assessment of the current state of oil spill research and counter measures in Canada, as well as an indication of the ongoing major AMOP initiatives. The author concludes this presentation by making personal recommendations in regard to the future of oil spill research in Canada.

workshops / AMOP / oil spill research / oil spill countermeasures / ice, sea / drilling, offshore / government / pollution, oil / technology

D 4 APPLIED OFFSHORE STRUCTURAL ENGINEERING.
Teng H. Hsu.
Houston, Texas : Gulf Publishing Company, 1984. 204 pp.

627.9 Hsu

This book provides both theoretical background and practical design data relative to offshore structural engineering. A review of fundamental wind and wave forces is presented, followed by a study of the practical design of offshore structures. Offshore installation is examined and the concluding chapters describe the advanced techniques of dynamic, seismic and fatigue analyses for offshore structures. Many charts, curves and equations are included, the book is indexed, and a short list of references appears at the end of each chapter.

engineering / wind / waves / architecture, naval / oil rigs / steel structures / seismicity / metallurgy

D 5 "Arctic Double Cone Structure for 40-200ft. (12-60m.) Water Depths."
N.W. Krahl and V.M. Buslov.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. II].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 114-119.

620.411 3 Off

This paper proposes a moveable offshore Arctic structure for exploration and/or production of hydrocarbons in water depths of 40 - 200 feet (12 to 60 metres) in the Beaufort Sea. In the proposed design, moving ice features primarily encounter the double cone middle structure between the foundation and the superstructure (this middle section consists of an inverted cone resting on an upright cone joined by a narrow neck of constant curvature). The authors explain that ice forces are minimized by the geometry of this proposed structure and, as well, are further minimized by the choice of cone angles and diameters. Illustrations are provided as well as a list of references.

conferences / Arctic / drilling, offshore / Beaufort Sea / technology / geometry / ice / ice, sea / engineering / steel structures / oil rigs / geotechnology

D 6 "Arctic Drilling Structure for the Beaufort Sea."
W.J. Cichanski and B. Jakobsen.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
18 pp.

665.502 8 Arc

This technical paper describes the design and development of an arctic drilling structure intended for exploration and drilling purposes in the severe ice conditions of the Beaufort Sea. The structure is viable for use in water depths ranging between 18 and 40 metres and can be deployed on foundations having a wide range of soil conditions - from dense sand to soft clay and silt. The paper is illustrated.

conferences / drilling, offshore / Beaufort Sea / technology / steel structures / ice, sea / construction / exploration / waves / wind / ice floes / ice ridges / ice islands / geotechnology / engineering

D 7 "Arctic Diving Systems."
James English.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. 5 pp.

622.182 82 CODD 1983

This paper describes a saturation diving system which is tailored for year-round support of drilling operations in the Arctic. (Saturation diving is diving in which the tissues exposed to high pressure at great ocean depths for 24 hours become saturated with gases, especially inert gases, thereby reaching a new equilibrium state.) The author provides an overview of saturation diving in arctic conditions and discusses work capabilities and limitations.

diving / drilling, offshore / Arctic / arctic conditions / conferences

D 8 "Arctic Ice Presents Unusual Problems for Pipelines."
Andrew C. Palmer.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 154-157.

622.182 82 Har 1985

This author discusses the difficult engineering problems encountered when dealing with submarine pipelines in arctic and deepwater circumstances. Construction techniques, ice scour protection, winter construction and design techniques are discussed as well as the effects of storms, tidal currents, sedimentation and waves on the engineering aspects of pipelines.

pipelines / pipelines, offshore / pipeline design / pipeline construction / engineering / technology / Arctic / ice scour / storms / waves / tidal currents / sedimentation / pipeline crossings

D 9 THE ARCTIC MARINE OILSPILL PROGRAM (AMOP) REMOTE SENSING STUDY.
R.A. O'Neil, R.A. Neville and Vince Thomson.
Canada. Environmental Protection Service. Technology Development Report EPS 4-EC-83-3.
Ottawa, Ontario : Environment Canada, 1983. 257 pp.

628.168 33 O'N

This document was produced for the Environmental Protection Service, Environment Canada. The AMOP remote sensing project was undertaken to evaluate the capability of state-of-the-art sensors to detect oil in ice-infested waters. This report outlines the experiment plan for, and results obtained from, four remote sensing missions involving twelve difference sensors. Oil detection systems presently in use in Canada and abroad are examined. Recommendations are given for an integrated sensor package with a real-time display system. A bibliography is included and photographs and charts are used extensively throughout the study.

AMOP / oil spill research / Arctic / ice, sea / oil detection systems / environmental protection / environmental impact / pollution, oil / technology

D 10 "Arctic Marine Technology: State of the Art and Prospects for the 1990s."
J.T. Stubbs and E. Makinen.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C. 1986. [Vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 220-242.

380.509 11 IPTC

The role of marine transportation in the development of commercial interests in the Arctic is identified in this paper. Technological advances made in design methods for ice-breaking vessels are examined here for the purpose of establishing the current state-of-the-art. Areas of technical development, where further research is suggested, are identified with a view to improving the competitiveness of the marine transportation component of Arctic ventures. Diagrams are included and a list of references is provided.

conferences / transportation, marine / Arctic / ice-breaking vessels / technology / ice, sea / engineering

D 11 "Arctic Offshore Drilling: A New Challenge."
Sherman B. Wetmore.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 143-147.

622.182 82 Har 1985

The arctic offshore environment provides the drilling industry with a great challenge. Problems due to sea ice, high wind, extreme cold and poor bottom soil have required the design of special structures appropriate only for arctic offshore drilling. This article briefly describes the arctic environment and addresses the unique challenges it holds for the petroleum industry, as well as discussing some of the technological advances required to meet these challenges.

Arctic / drilling, offshore / engineering / technology / ice, sea / wind / climatology / soils / steel structures / ice floes

D 12 ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

In this volume, the texts of papers presented at the 1984 Arctic Offshore Technology Conference and Exposition are reproduced. An abstract of each paper appears at the beginning of the book and the question and answer session is included at the end. A list of registrants is provided.

workshops / technology / Arctic / drilling, offshore / northern energy development / engineering

D 13 ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
various pag.

665.502 8 Arc 1986

This volume contains the texts of papers presented at the subject conference, including the concurrent safety session. Most papers are illustrated and many include lists of references. Delegates to the conference and safety session are listed, including their affiliation, and the texts of question and answer periods are provided.

conferences / technology / drilling, offshore / Arctic / ice, sea / exploration / operations

D 14 "The Arctic Submarine - Its Scientific and Commercial Potential."
Fred McLaren.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

Using a considerable number of photographs, this speaker describes the history of the development of the Arctic-capable submarine and highlights the most significant United States and United Kingdom submarine expeditions and explorations. The scientific and commercial potential of the Arctic submarine, for use in the Beaufort Sea, Chukchi Sea and other northern waters, is briefly discussed and the paper concludes with a look at current submarine technology available to meet Arctic petroleum transportation needs.

workshops / Arctic / Beaufort Sea / Chukchi Sea / transportation, marine / tankers, submarine / oil cargo systems / technology

D 15 "Arctic Tanker Bow Forms and Evaluation of Full Scale Propulsive Performance in Ice."
K. Takekuma, N. Kawaguchi and I.F. Glen.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. B1-B12.

623.812 4 Int 1984

With the progress of Arctic exploration, year-round transportation of products has been extensively investigated. Ice-going tankers or LNG carriers are considered to be promising transportation candidates. In this paper, the influence of propulsion plant output on the conceptual design of ice-going ships is discussed. The paper examines aspects of model-ship correlation for estimating propulsion power, the effects of bow form on performance in ice, and also presents a statistical analysis based on recent knowledge of ice-breaking phenomena and accumulated data of operating ice-going ships. The paper is illustrated and a list of references is provided.

conferences / Arctic / exploration / transportation, marine / tankers / LNG / ice-breaking vessels / technology / ice, sea / ships

D 16 "Artificial Armour Stone for Arctic Application."
Edward J. Thompson et al.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
14 pp.

665.502 8 Arc 1986

Offshore islands and structures require protection from wave and ice erosion and this protection, traditionally, is provided by sandbags, concrete mats or quarried rock. This paper presents the results of a research program in which a new form of artificial armour stone, suitable for use in the offshore Arctic in the above application, has been investigated. The artificial stone is made of two ingredients - a sandy aggregate and non-marketable sulphur. Laboratory tests conducted are discussed in detail in this illustrated paper and a list of references is provided.

conferences / artificial islands / oil rigs / waves / ice, sea / erosion / Arctic / drilling, offshore / technology / sulphur / soils

D 17 "Artificial Ice Islands for Deep Water and Production Structures."
Steven T. Connolly.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986.
pp. 58-68.

620.411 3 Col 1986

This paper describes the engineering challenges involved when considering artificial ice islands for use in deep waters and for production purposes in the Beaufort Sea, as opposed to their more traditional use as oil rig supports in shallow waters. The paper is technical in content and a list of references is provided.

engineering / technology / ice islands / artificial islands / Beaufort Sea / ice, sea / erosion / waves / currents / conferences

D 18 "Assessment of Aerial Application of Oil Spill Dispersants."
J. Bruce Smedley.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, D.C. : American Petroleum Institute, 1981. pp. 253-257.

628.168 33 Osc 1981

The aerial application of oil spill dispersants has been shown to be a viable oil spill countermeasure technique. The purpose of this paper is to present the results of a review of existing technical information about specific component parts of the aerial spraying technique. The review identifies parameters that affect the efficiency of aerial spraying and that can be useful in assessing practical operations. A short list of references is provided.

conferences / aerial delivery / dispersants / oil spill countermeasures / oil spills / technology

D 19 "Assessment of Three Surface Collecting Agents During Temperate and Arctic Conditions."
Pamela Pope, Al Allen and William G. Nelson.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA., FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985. pp. 199-201.

628.168 33 Osc

This paper reports on laboratory and field tests which were conducted to evaluate the effectiveness of using surface collecting agents in cold weather oil recovery and in situ burning operations. In the tests, the surface areas and equilibrium thickness of crude oils were observed before and after application of different surface collecting agents to each oil. Ambient air temperatures were varied from 23°C to minus 17°C while the temperatures of the fresh water and laboratory prepared sea water were varied from 15°C to 0°C. The conduct of the experiments is described and the results presented in this paper. A short list of references is included.

conferences / oil spills / oil spill countermeasures / in situ burning / surface collecting agents / arctic conditions / pollution, oil

D 20 "BAFFIN - A Dynamic Ship/Ice Interaction Model."
Claude G. Daley.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. F1-F8.

623.812 4 Int 1984

Ship-ice interaction is a complex process that is not yet well understood. Mathematical models serve to both develop and consolidate understanding of the problem. BAFFIN is a time domain simulation of the interaction which uses the normal modes of the ship and the ice to compute a solution. This paper describes the background and assumptions of the program and, through a presentation of results from a range of ship and ice conditions, discusses the essential aspects of ship/ice interaction.

conferences / ships / ice / technology / mathematics / ice, sea

D 21 "Base Underfilling for Arctic Platforms."
V.M. Buslov and J. Brakel.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. II].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 389-396.

620.411 3 Off

This paper describes the application of sand-slurry underfilling for Arctic bottom-mounted offshore structures. The basic principles of sand underfilling technology are considered and particular attention is given to the specific requirements for conditions in the Beaufort Sea. These requirements include consideration of ice load, design of temporary supports, and installation and transportation procedures. This paper is illustrated and a list of references is provided.

conferences / Arctic / drilling, offshore / oil rigs / technology / ice, sea / engineering / Beaufort Sea / ice scour

D 22 "Beaufort Sea Drilling."
M.B. Todd.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 47-66.

333.823 05 Arc 1978

In this technology update, the author reviews the status of Dome's drilling program in the Beaufort Sea, 350 miles north of the Arctic Circle. This paper is fairly technical in nature and presents descriptions of drilling equipment employed, support services, and mooring systems as well as documenting Dome's actual operations in the Beaufort Sea during 1976 and 1977. Oil spill contingency planning, well planning and design and ice management are also covered and the author concludes by briefly discussing potential future developments in Beaufort Sea drilling programs.

Beaufort Sea / drilling, offshore / ice, sea / blowouts / Dome / drillships / oil spill countermeasures / oil well design / Tuktoyaktuk, N.W.T. / ice management

D 23 "Biodegradation of a Chemically Dispersed Crude Oil."
W.J. Cretney et al.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981. pp. 37-43.

628.168 33 Osc 1981

This paper describes experiments conducted to determine the biodegradation of Prudhoe Bay crude oil using the chemical dispersant Corexit 9527. The authors present their findings in this fairly technical paper and provide graphs for illustrative purposes. A list of references is included.

conferences / biodegradability / dispersants / oil spills / pollution, oil / oil spill countermeasures / Prudhoe Bay, Alaska / crude oil properties

D 24 "A Bottom Founded Mobile Offshore Drilling Unit in Canada's Beaufort Sea."
R. Myers, R. Crockett and E. Fercho.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

The rationale for construction of an Arctic single steel drilling caisson is discussed in this paper. Design criteria, structural integrity, installation, and drilling operations are presented in terms of capability and performance. The authors report efficient, safe and cost effective drilling operations over two winter seasons in the Beaufort Sea. Use is made of diagrams, charts and photographs in this presentation and a list of references is provided.

workshops / caissons / caisson retained islands / drilling, offshore / Beaufort Sea / arctic conditions / exploration / oil rigs / technology / storms / steel structures

D 25 "Breaking the Ice with COTRA."
A.E. Pallister.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee (CARC), 1979.
pp. 15-29.

330.971 9 Mar

This paper deals with the exploration, development and production of oil and gas from beneath Canada's ice-frequented oceans. Particular emphasis is given to the need for advanced technologies and the positive impact that their development will have on the Canadian economy, through benefits to be derived by energy consumers and by the ocean service and supply industries. The speaker concludes that the Canadian Oceans Technology and Research Authority (COTRA) is an appropriate agency to coordinate activities in the development of the necessary technology and support industries. A selected bibliography is included.

conferences / CARC / COTRA / technology / drilling, offshore / Canadian content / exploration / hydrocarbon production / engineering

D 26 BUCKLING OF OFFSHORE STRUCTURES.
C.P. Ellinas, W.J. Supple and A.C. Walker.
Toronto, Ontario : Granada Technical Books, 1984. 472 pp.

620.416 2 Ell

Prepared for the United Kingdom Department of Energy, this book gives detailed critical comments on the design of a wide range of structural components, and on types of loading, related to the buckling of offshore structures. The authors present over 4000 test results which have been examined and collated to give a common basis for comparison, and the relevant international design codes are surveyed, comparing the relative accuracy of their predictions against the available test results. Structural elements are treated according to type and are then categorized with respect to loading. The material properties, stresses and imperfections peculiar to each structural element are considered and their effects on the buckling strength of the element are then discussed. This book contains a list of references, a subject index and an author index.

engineering / technology / steel structures / oil rigs / construction

D 27 "A Caisson Drilling and Completion System."
Clyde Hewlett.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

This paper describes a caisson drilling and completion system whereby the marine wellhead and master valve assembly are positioned below the mudline to avoid sea ice-related damage. The philosophy and features of the design are described, with particular emphasis on the installation sequence during drilling.

workshops / drilling, offshore / caissons / ice, sea / technology / ice management / wells / drilling

D 28 "The Caisson Retained Island (CRI) - The First Year of Operation."
Malcolm I. Comyn.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

The Caisson Retained Island (CRI) is a platform for an exploratory drilling rig - a steel retaining structure is founded on a berm constructed of sand from the sea floor, the inner space is filled with dredged sand and on to the resulting surface is placed the drilling rig, camp and all necessary supplies. This paper follows the sequence of the caisson's operations from leaving its winter mooring, through initial set down, a winter drilling season, lift off and relocation at a new site. Design features of the CRI are highlighted and the author of this paper concludes that the CRI is an operational success.

workshops / caissons / drilling, offshore / exploration / technology / oil rigs / caisson retained islands / Esso / Beaufort Sea / steel structures

D 29 "Canada's Arctic Marine Transportation Research Programs."
M. Brenckmann.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C. 1986. [Vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 1-17.

380.509 11 IPTC

Speaking on behalf of Transport Canada (TC), this speaker presents a perspective on the technological advances, over the past decade, in marine transportation in the Canadian Arctic and describes the various research and development programs supported by government and industry. Such matters as the design of ice-breaking vessels, propulsion systems, Arctic marine routes and ice management are discussed in this technical paper.

conferences / TC / technology / transportation, marine / ice-breaking vessels / ice management / engineering / Arctic / government

D 30 "Canada's New Institute for Marine Dynamics, Opportunity for Improved Polar Transportation."
N.E. Jeffreys and S.J. Jones.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C. 1986. [Vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 149-164.

380.509 11 IPTC

The National Research Council of Canada's (NRC) Institute for Marine Dynamics is described in this paper. The major facilities at the Institute include a refrigerated model basin (ice tank), clearwater towing tank, seakeeping tank, model preparation workshop, computer facilities and library. The research program at the Institute and examples of industry collaboration are outlined with emphasis on those aspects relevant to polar transportation. The paper is illustrated and a short list of references is provided.

conferences / NRC / technology / transportation, marine / Arctic / ice / ice-breaking vessels / Institute for Marine Dynamics

D 31 "Canadian Subsea Completion Systems."
Peter Gibb.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. 9 pp.

622.182 82 CODD 1983

This paper reviews the potential of subsea production systems for offshore Canada. Among other applications, subsea systems fill the role of producing from the extremities of a large well. This author describes the rationale behind new developments in subsea production systems and illustrates their applications.

drilling, offshore / artificial islands / technology / ice scour / ice ridges / exploration / arctic mobile drilling structure / conferences

D 32 A CATALOGUE OF OIL SKIMMERS.
L.B. Solsberg.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EP-83-1.
Ottawa, Ontario : Canada. Environmental Protection Service, 1983.
258 pp.

628.168 33 Sol

This catalogue provides information concerning various types of mechanical oil recovery devices for the purpose of spill cleanup. Each entry summarizes the physical specifications, operating characteristics, and performance of the device. There are two indices - one by company name, the other by device name - and most entries are accompanied by a sketch drawing.

oil spill countermeasures / directories / skimmers / technology

D 33 COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986.
788 pp.

620.411 3 Col 1986

This volume includes the papers presented at the subject conference, providing an update on engineering challenges in cold regions. Most papers are illustrated and contain lists of references. A subject index and author index are provided.

conferences / engineering / technology / Arctic

D 34 "Computer Assisted Estimating of Platform and Drilling Costs for the U.S. Beaufort Sea."
David G. Stenning.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
12 pp.

665.502 8 Arc

In order to assist in the planning of the U.S. Beaufort Sea investments, a study to develop a rational basis for estimating platform and drilling costs for both exploration and production was conducted. This paper discusses the methods used in the study and provides a general overview of the results, including a description of a computer model developed to allow for the rapid generation of cost estimates for different platform types, water depths, drilling depths and environmental conditions.

conferences / Beaufort Sea / U.S.A. / drilling, offshore / operating costs / exploration costs / financing / data bases / technology

D 35 "Computer Simulation Techniques for Arctic Offshore Design."
M.F. Erbatur and W.P. Maddock.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This paper outlines the simulation techniques used in the development of design, geotechnical and structural analysis for Arctic platforms, particularly in relation to their response to the large loads which can be generated by sea ice in the Beaufort Sea. The topics addressed are ice interaction, structural analysis, soil/structure analysis and performance monitoring.

workshops / Beaufort Sea / ice, sea / ice management / oil rigs / drilling, offshore / steel structures / soils / technology / geotechnology

D 36 "Conceptual Design, Evaluation and Quality Appraisal.
Dag N. Jenssen.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD), [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

Procedures and acceptance criteria for safety evaluations of field development plans for offshore development, at conceptual design level, are summarized in this short paper. Major hazards to be considered are discussed, together with possible measures for protection against these hazards.

safety measures / drilling, offshore / operations / oil well design / icing / waves / wind / icebergs / oil spills / blowouts / conferences

D 37 "Concrete Island Drilling System Super Series (Super CIDS)."
S.B. Wetmore.
In SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984. 28 pp.

627.98 Arc 1984

This paper outlines the design development of a modular, stackable, gravity drilling platform. The specific design parameters of this concrete island drilling system (CIDS) "super series", for use in year round exploration drilling in the Beaufort Sea, are presented here.

conferences / CIDS / arctic mobile drilling structure / Beaufort Sea / drilling, offshore / Arctic / steel structures

D 38 "Concrete Island Production System. An Arctic Production Platform.
A. Person.
In SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984. 28 pp.

627.98 Arc 1984

This author submits that the modular technology of the concrete island drilling system (CIDS) lends itself to several derivative platforms which satisfy the functional requirements for developing and producing in Arctic offshore drilling locations. This paper describes the design and development of a concrete island production system which has been assembled from CIDS modules and which has already been developed beyond the feasibility stage.

conferences / CIDS / technology / drilling, offshore / hydrocarbon production / concrete / Arctic

D 39 CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

This volume contains the texts of addresses presented at the 1983 Conference on Canadian Offshore Drilling and Downhole Technology. Most of the papers are short (two to four pages), many are illustrated and, in certain cases, the transcript of question and answer sessions, which followed presentation of some papers, are reproduced here. A list of conference registrants is provided.

conferences / drilling, offshore / technology / operations / exploration / arctic conditions / oil rigs / oil wells / artificial islands / Beaufort Sea / ice, sea

D 40 CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. various pag.

622.182 82 CODD 1983

The texts of papers presented at the subject conference are included in this volume. Most papers are illustrated and several provide lists of references. A list of delegates attending the conference is appended.

conferences / technology / drilling, offshore / exploration

D 41 "Construction and Performance of a Floating Ice Platform."
D.M. Masterson et al.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
43 pp.

662.502 8 Arc 1986

Exploration for oil and gas, using artificial or gravel islands, in regions such as the Arctic Islands and Beaufort Sea is expensive and economical methods of supporting drilling operations are preferable. The use of grounded or floating spray ice islands is a possibility and the authors of this paper contend that the technology is proven, safe, and environmentally very acceptable. The design, construction and performance of sprayed ice islands, including numerous diagrams and charts, are presented in this technical paper. A list of references is provided.

conferences / exploration / drilling, offshore / technology / Beaufort Sea / Arctic Islands / ice islands

D 42 "Continuous Motion of a Ship in Ridged Ice."
Alfred L. Tunik.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY, 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. M1-M9.

623.812 4 Int 1984

The continuous motion of a given ship in level ice can be considered, within an acceptable probability, as steady unless the ice thickness exceeds a certain value called the ultimate ice thickness. In ridged ice, however, the motion becomes unsteady, decelerating on the ridges and accelerating between them. This technical paper discusses the importance of keeping the non-stop motion of the ship. Conditions of the non-stop motion in ridged ice are the main focus of this presentation. Charts are included and a bibliography is provided.

conferences / ships / ice / ice, sea / ice ridges / ice-breaking vessels

D 43 "Deep Transient EM Sounding in the Mackenzie Delta, N.W.T."
Ajit K. Sinha.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 93-94.

551.384 Wor

This summary of a technical paper, presented at the subject workshop, discusses deep electromagnetic (EM) soundings that have been carried out in the Mackenzie Delta, N.W.T. The main purpose of the experiments was to develop a relatively inexpensive and environmentally acceptable geophysical technique for detecting horizontal layers at great depths, especially the contact between the ice-bonded permafrost and the underlying unfrozen sediments. The experiments are described and the results are briefly addressed.

workshops / transient electromagnetic sounding / geophysics / permafrost / Mackenzie Delta, N.W.T.

D 44 DEEP-WATER BLOWOUT TRAJECTORY MODELS FOR THE LANCASTER SOUND REGION.
John R. Marko.
Canada. Environmental Protection Service. Technology Development Report EPS 4-EC-82-2.
Ottawa, Ontario : Canada. Environmental Protection Service, 1982.
134 pp.

628.168 33 Mark

This report describes procedures which were developed to simulate sea surface movements of oil released from deep-water oil blowouts. Simulations carried out for four hypothetical blowout locations in Lancaster Sound and Baffin Bay are described and the results, which include separate scenarios calculated for steady winds from each of the four basic directions, and for actual recorded wind sequences, are detailed in this technical presentation. A list of references is provided.

blowouts / technology / Lancaster Sound, N.W.T. / Baffin Bay / wind / pollution, oil

D 45 "Deployment of Beaudril Molikpaq at Tarsiut."
M. Jefferies, H. Stewart and R. Thomson.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

The engineering and construction methods required to deploy the Molikpaq, a year-round drilling platform for use in the 15 to 50m water depth range of the Beaufort Sea, are discussed in this paper. Referring specifically to operations at Tarsiut, topics addressed are site investigation, foundation preparation, berm construction, caisson set-down, corefilling and an assessment of as-constructed stability. The text is supported by photographs, maps, diagrams and a list of references cited.

workshops / engineering / technology / Molikpaq / oil rigs / Tarsiut / BeauDril / caissons / steel structures / caisson retained islands / Beaufort Sea / drilling, offshore / ice, sea

D 46 "Design and Construction of the CBIR Rig 1 for Tarsiut."
Larry Leblanc.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

The CBIR 1, which stands for Canmar Beaufort Island Rig no. 1, is designed for use drilling year round from the Tarsiut artificial island in the Beaufort Sea - particularly for drilling to depths around 7,620m. Previously, drilling from dredged artificial islands was limited to relatively shallow water depths. The author of this article discusses the design and construction of the CBIR 1 and then there follows the transcript of a question and answer session which took place at the subject conference.

conferences / Canmar / Beaufort Sea / artificial islands / Tarsiut / drilling, offshore / technology / construction / Dome

D 47 "Design and Monitoring of an Ice Drill Pad."
Khoi M. Le and Mike B. Winfree.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986. pp. 167-180.

620.411 3 Col 1986

This paper describes the design and construction of an ice pad for use as the foundation for an offshore exploratory drill rig in Alaska. Design considerations discussed include ice bearing loads, thermal aspects, environmental impact and costs. Diagrams and charts are included and there is a list of references.

drilling, offshore / technology / engineering / Alaska / Arco / exploration / ice, sea / environmental impact

D 48 "Design and Operation of Beaudril Ltd.'s Arctic Class IV Icebreaker/Supply Vessels."
R.P. Browne.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This presentation charts the course of Beaudril's four Arctic Class IV icebreaker/supply vessels from the conceptual stage through to delivery and operation in support of Gulf's Beaufort Sea drilling units. The relationship between the vessels' design features and their intended duties in the Beaufort environment are explained and reviewed in the light of operational experience.

workshops / BeauDril / Gulf / Beaufort Sea / drilling, offshore / ice-breaking vessels / technology / ships

D 49 "Design and Operation of Deepwater BOP Systems."
Harold Wardlaw.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 17-22.

622.182 82 Har 1985

Offshore blowout prevention (BOP) systems, in which high well pressures are encountered and the rig is operated in deep water, are analyzed in this article. Under these conditions, it is explained, the blowout preventers tend to close slowly against well back-pressures, especially when stripping is needed to return the pipe to the bottom. This article suggests ways to improve speeds against higher shut-in pressures.

drilling, offshore / blowouts / safety measures / technology

D 50 "Design Considerations, Field Results, and Approval Considerations for Offshore Anti-icing Systems."
Eric D. Olsson, Joseph Lonsdale and David Roecks.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986: SAFETY SESSION.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
16 pp.

662.502 8 Arc 1986

Icing is a major operational problem for offshore structures in locations where a combination of wind, temperature and atmospheric moisture conditions cause the formation of ice. Icing on topside surfaces poses a safety hazard on escape passages, helidecks, handrails and stairs; a 50mm ice buildup from seaspray icing on the bottom deck undersurface can weigh 200-300 tons and can seriously affect the stability of a rig. This paper discusses the concepts and practicalities of the design and operation of ice prevention systems on offshore drilling rigs and platforms and examines the major techniques considered and used in practice - mechanical, thermal and chemical. Diagrams and tables are included and there is a short list of references.

conferences / icing / ice, sea / wind / oil rigs / steel structures / safety measures / technology

D 51 "Design Considerations for a Drilling Rig for a Caisson Retained Sand Island in the Beaufort Sea."
J. Evenson and B. Freebairn.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. 17 pp.

622.182 82 CODD 1983

Drilling rigs designed for operation on caisson retained islands in the Beaufort Sea are basically conventional land rigs - with the addition of structures, utility support systems and equipment necessary for service in the offshore Arctic. This paper reviews the design philosophies, requirements and constraints on the installation of a drilling rig on a caisson retained island.

drilling, offshore / oil rigs / caisson retained islands / Beaufort Sea / technology / Arctic / engineering / conferences

D 52 "The Design, Construction and Deployment of a Concrete Island Drilling System: The Glomar Beaufort Sea I."
Sherman B. Wetmore and Donald R. Borchardt.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This paper presents the design and construction aspects of a modular, stackable, gravity drilling platform - the Glomar Beaufort I - for year-round use in the Alaskan Beaufort Sea. The use of this concrete island drilling system represents the first Arctic use of a completely self-contained mobile offshore drilling unit. The authors consider that this development represents a significant step towards more cost effective means of exploring near offshore Arctic areas for hydrocarbon production purposes. Diagrams and photographs are used extensively in this paper and references are included.

workshops / drilling, offshore / technology / oil rigs / Beaufort Sea, Alaskan / exploration / northern energy development / Arctic / Glomar Beaufort Sea I

D 53 "Design Evaluations in Support of Offshore Facilities and Gravel Islands in the Arctic."
Victor Manikian, Jerry Machemehl and Peter E. Gadd.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986.
pp. 235-251.

620.411 3 Col 1986

Development of hydrocarbon resources in Alaska has involved the design of nearshore and offshore facilities and structures, in the Beaufort Sea and Prudhoe Bay, in water depths ranging from eight to twelve feet. These developments and design criteria were based on studies aimed at satisfying the environmental conditions in the Arctic throughout their production service life. This paper addresses, in general, a number of studies conducted to establish design criteria for a proposed gravel island in Prudhoe Bay, Alaska. Illustrations supplement the text and a list of references is included.

Alaska / exploration / technology / engineering / Beaufort Sea / Prudhoe Bay, Alaska / Arctic / artificial islands / geotechnology / waves / ice, sea / tidal currents

D 54 "Design for a Novel Ice-Breaker Assisting Arctic LNG Vessels."
G. Lingqvist and S. Gordin.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C. 1986. [Vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 257-273.

380.509 11 IPTC

This paper describes the design of a new high-powered arctic ice-breaking vessel, planned for use as an escort for liquified natural gas (LNG) tankers. (The LNG tankers are under study as a means of transporting Prudhoe Bay gas to southern markets.) The particular ice conditions in the Beaufort Sea, relative to the expectation that the new vessel will carry out year-round operations, are discussed. Design considerations are examined, with the assistance of illustrations, and model tests are described.

conferences / Arctic / technology / LNG / tankers / ice, sea / Beaufort Sea / ice-breaking vessels / Prudhoe Bay, Alaska

D 55 "Design Implications of Subsoil Thawing."
Thaddeus C. Johnson, Edward C. McRoberts, and John F. Nixon.
In FROST ACTION AND ITS CONTROL; A STATE OF THE PRACTICE REPORT PREPARED BY THE TECHNICAL COUNCIL ON COLD REGIONS ENGINEERING OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS.
edited by Richard L. Berg and Edmund A. Wright.
Technical Council on Cold Regions Engineering Monograph.
New York, New York : American Society of Civil Engineers, 1984.
pp. 45-103.

624.151 36 Berg

This paper reviews the state-of-the-art in the geotechnical design of earthen and earth-supported structures affected by subsoil thawing. Analysis of the ground thermal regime during the thawing phase is summarized. The principal focus of the paper is a review of the prevailing methods for geotechnical design for subsoil thawing. Design approaches and examples are given for foundations, well casings, pipelines and other structures. Over 100 technical publications are listed in the appended bibliography.

geotechnology / thawing / soil temperature / steel structures / pipeline design / oil rigs / road construction / ground thermal regime / frost heaving / bibliographies & indices / oil well design / engineering

D 56 "Design of Tension Member Insulated Anchor for Arctic Pipelines."
James A. Shackelford and John D. Wineland.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986.
pp. 21-30.

620.411 3 Col 1986

In arctic regions, where economic and environmental considerations dictate that pipelines be located above ground, control of thermal expansion is a major design consideration. For cross-country pipelines, thermal expansion has been primarily controlled by the use of pipe anchors with expansion loops between them. This paper explores the latest development in above-ground waterflood pipe anchors currently being used on the Sohio operated portion of the Prudhoe Bay oil field. (Waterflooding is the technique of improving oil recovery from a reservoir by injecting water into the formation.) Illustrations supplement the text of this paper.

Arctic / pipelines / pipeline design / Sohio / Prudhoe Bay, Alaska / technology / thawing / permafrost / conferences

D 57 DESIGN OF THE ROBERT LEMEUR ICE BREAKING SUPPLY SHIP.
Archie Churcher, Alex Kolomocjev and Geoff Hubbard.
s.l. : Society of Naval Architects and Marine Engineers, n.d. n.p.

623.812 8 Chu

The Robert Lemeur is an ice-breaking supply vessel designed specifically to support oil field operations in the Canadian Beaufort Sea. This paper details the severe environment within which the vessel operates. The design of the vessel is traced, identifying those areas which are of particular importance - hull strength, selection of propulsion equipment and selection of electrical and control equipment.

ice-breaking vessels / Beaufort Sea / ice, sea / architecture, naval / engineering / ships / Canmar / drilling, offshore / drillships / arctic conditions / ice management

D 58 "Designing for Frost Heave Conditions."
Frederick E. Crory et al.
In FROST ACTION AND ITS CONTROL; A STATE OF THE PRACTICE REPORT PREPARED BY THE TECHNICAL COUNCIL ON COLD REGIONS ENGINEERING OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS.
edited by Richard L. Berg and Edmund A. Wright.
Technical Council on Cold Regions Engineering Monograph.
New York, New York : American Society of Civil Engineers, 1984.
pp. 22-44.

624.151 36 Berg

Current approaches and information concerning frost heave design for foundations, buried pipelines, artificial ground freezing, inground storage, and construction of pavements and other roadbeds are discussed in this paper. The authors discuss geotechnical considerations in the design of engineering structures necessary because of ground freezing, explaining that ground freezing may originate from naturally occurring seasonal frost or artificial freezing imposed by the operation of a structure. The damage to the structures usually arises from displacements - frost heave - initiated by the ice-water phase change in the soil. A list of references is appended.

technology / frost heaving / steel structures / geotechnology / storage / pipelines / pipeline design / oil rigs / engineering / ground temperature / soil temperature / road construction

D 59 DESTRUCTION OF ICE ISLANDS BY EXPLOSIVES.
Malcolm Mellor and Austin Kovacs.
Calgary, Alberta : Arctic Petroleum Operators' Association, 1972.
1 microfiche.

MF APOA 36-1

The results of a study, entitled "Ice Island Destruction Project - Mackenzie Bay", are reported in this document. This project of the Arctic Petroleum Operators' Association (APOA) examines the practical feasibility of breaking up ice islands with explosives. Although the ice islands being dealt with here are considered relatively small (100 to 200 feet across and about 60 feet thick) they can have a mass of between 15,000 and 70,000 tons and, therefore, as they circulate, they can constitute a formidable threat to marine structures, including seabed installations such as pipelines. The study places heavy emphasis on the need for rapid and efficient shot-hole drilling, and the use of light weight equipment, since supplies and personnel would have to be carried to ice island locations by ordinary helicopter.

ice islands / Arctic / Mackenzie Bay, N.W.T. / ice management / ice, sea / pipeline hazards / safety measures / explosions / oil rigs / drilling, offshore / pipelines, offshore / APOA / marine terminals

D 60 "Determination of Pipeline Trench Depths in the Beaufort Sea."
G.R. Pilkington and R.W. Marcellus.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

This paper discusses methods of determining pipeline trench depths for the southeastern Beaufort Sea. For shallow water (less than 20m) interpretation of seismic records is recommended as these records can indicate the deepest scour that has recurred over the past few thousand years. In deeper water, a method of combining ice keel and scour statistics is used. Pipeline depths of about 2m in shallow water, 4 to 6m in 20 to 40m of water, and no burial beyond 50m depths are indicated by the preliminary studies using these techniques.

pipelines / pipelines, offshore / pipeline construction / Beaufort Sea / ice, sea / ice scour / seismic exploration / ice, sea / ice ridges / conferences

D 61 "The Development of an Environmentally Safe Arctic Tanker."
B.M. Johansson and J.T. Stubbs.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 144-168.

333.823 05 Arc 1980

The authors of this paper state that an environmentally safe arctic tanker will consist of a combination of icebreaker and tanker technology. Past tanker oil spill incidents are reviewed (groundings, collisions, structural failures and explosions) as well as icebreaker features such as hull form and manoeuverability. Current technology of large tankers and icebreakers is examined in some detail, including specifications and plans. The authors conclude that the development of an environmentally safe arctic tanker is technically and economically feasible and that fast development of computer and remote sensing technology will make the operation of the tankers predictable and safe.

environmental protection / tankers / ice-breaking vessels / Arctic / ice, sea / oil spill countermeasures / technology / oil detection systems / transportation, marine / remote sensing / APOA

D 62 "Development of Masts and Substructures for the Arctic and Offshore Rigs."
Fred Pheasey.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

This author explains the function of a derrick - a hoisting machine consisting of a vertical mast, a boom and associated tackle - and the design features employed to ensure low weight and low vertical centre of gravity while still being able to withstand the loads imposed by drilling conditions plus the significant motions of the sea and arctic weather conditions.

technology / drilling, offshore / drillships / arctic conditions / steel structures

D 63 "Development of New Structures Combined with the Use of Rubble Fields."
Robert Potter.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This paper describes an extensive model test program and a full-scale field test, performed by Sohio in the Canadian Arctic, designed to show the feasibility of rubble/spray ice-protected structures for use as an alternative to artificial islands during exploration activities in the Arctic regions. The design of these structures is discussed and methods of generating the ice rubble and then spraying water on to the structure are examined in some detail. This paper is illustrated and a short list of references is provided.

workshops / technology / artificial islands / drilling, offshore / arctic regions / rubble fields / ice management / oil rigs / Sohio

D 64 "A Diverless Underwater Pipeline Repair System Using Hyperbaric Welding and Remote Vehicle."
Jim MacFarlane and Alain Barrault.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
8 pp.

665.502 8 Arc 1986

This paper is presented in two parts. Part one describes the key features of the International Robotic and Diving System (IRDS) pipeline repair system as well as discussing the benefits of hyperbaric welding (utilizing greater than normal pressure) and examining the development of the TRAPR (tethered remote automated pipeline repairer). Part two describes the TRAPR in more detail and reports on the results of its first sea trials.

conferences / technology / remote control / pipeline repairs / welding / robotics / diving

D 65 "Does Canadian Content Benefit Canadians? The Service Industry Viewpoint."
John J. Shepherd.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 18 - MAY 1, 1981.
edited by Claudette Reed Upton.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 99-104.

333.823 15 Fro

This paper presents a service industry view of Canadian content in frontier development technology. The view is expressed that operators in frontier developments do not change to new, and in this case Canadian, suppliers and/or technology because of a perceived risk. Rather, foreign suppliers who have served the Gulf of Mexico and North Sea markets are used in many cases, and this causes frustration among Canadian manufacturers and suppliers trying to enter the market. A review of current purchasing trends, which show some recognition of the potential benefits to the Canadian economy, and of the range of Canadian technology available to the industry, concludes this presentation.

workshops / technology / Canadian content / northern energy development / exploration / hydrocarbon production / transportation, marine / pipelines / APOA

D 66 "Dome Petroleum's Oil Spill Research and Development Program for the Arctic."
W.M. Pistruzak.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981. pp. 173-181.

628.168 33 Osc 1981

Canmar, a wholly-owned subsidiary of Dome Petroleum, conducts exploratory drilling in the Beaufort Sea. This paper deals with Dome's research and development in oil spill countermeasures for its present and ongoing exploration activities, and its future production and transportation systems. The author discusses the problems of clearing up an oil spill in various situations - open water, freeze-up, and spring break-up conditions. Dome has developed a contingency plan which is based on, and updated according to, its ongoing research programs. Several photographs are included and there is a short list of references.

conferences / Canmar / Dome / Beaufort Sea / exploration / drilling, offshore / blowouts / oil spills / oil spill countermeasures / ice, sea / pollution, oil / fireproof booms / skimmers / in situ burning / aerial delivery

D 67 "Dome's Petroleum Study of Oil and Gas Under Sea Ice."
David F. Dickins and Ian A. Buist.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981.
pp. 183-189.

628.168 33 Osc 1981

The main cleanup of an oil spill originating from a late-season oil well blowout in the Beaufort Sea would take place in the spring, since it is then that the oil trapped in and under the ice would surface to accumulate in melt pools on top of the ice. Dome Petroleum undertook a major oil spill experiment during the winter of 1979/80 in the Beaufort Sea, to determine the efficiency of burning as a countermeasure and to optimize burning techniques for oil and gas released from a Beaufort Sea blowout under ice. This paper describes the design of the experiments and provides very detailed illustrations to supplement the text. The summary of preliminary results is presented in tabular format.

conferences / oil spills / oil spill countermeasures / Beaufort Sea / drilling, offshore / in situ burning / blowouts / ice, sea / pollution, oil / Dome / natural gas

D 68 "Drilling Vessel Types."
C. Ple.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 39-46.

333.823 05 Arc 1978

This paper discusses the drilling vessels which are used offshore of Labrador, but the author points out that most of the vessels described are appropriate for use in the Arctic. The design specifications and capabilities of a number of drillships are given and the paper includes photographs of two examples of typical vessels.

Labrador / Arctic / drillships / drilling, offshore / technology / workshops / APOA / CPA

D 69 "The Drop-Weight Interfacial Tension Method for Predicting Dispersant Performance."
Robert T. Rewick, Karen A. Sabo and James H. Smith.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 94-107.

628.168 33 ASTM

The drop-weight test for predicting the relative effectiveness of oil-spill dispersants is based on the relationship between the weight of a drop of oil detached from a capillary beneath a dispersant-in-seawater solution and the lowering of the interfacial tension between oil and water. This paper reports on the results of tests on 17 water-based dispersant products. Diagrams and charts are included as is a short list of references.

conferences / dispersants / oil spill countermeasures / oil spill research / pollution, oil

D 70 DYNAMICS OF OFFSHORE STRUCTURES.
James F. Wilson.
Toronto, Ontario : John Wiley & Sons, 1984. 546 pp.

627.98 Wil

This book discusses the basic physical ideas and mathematical methods needed to analyze the dynamic behavior of offshore structures designed for use on or above the continental shelves. The volume is intended for practising engineers, researchers, and students involved in the tasks of analyzing structures suitable for developing energy and mineral resources offshore. The content is very technical in nature. Diagrams, tables and charts are included and an index and chapter references are provided.

mathematics / oil rigs / pipelines, offshore / engineering / technology / drilling, offshore / waves / steel structures

D 71 "An Effective Deepwater Drilling/Production Structure for the Beaufort Sea."
D.V. Padron, F. Joneidi and J.F. Nixon.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. II].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 90-97.

620.411 3 Off

This paper describes a deepwater actively frozen seabed drilling and production structure which has been developed for use in Beaufort Sea water depths of 25-50 metres or more. The concept consists of a prefabricated, fully equipped steel caisson, towed to the location and ballasted with seawater to rest on the seabed. Active thermal piles are used to freeze the seabed under the structure to provide sufficient foundation strength. The authors provide graphs and diagrams and a short list of references.

conferences / oil rigs / caissons / Beaufort Sea / drilling, offshore / engineering / operations / exploration / steel structures

D 72 "Effectiveness of Oil Spill Dispersants at Low Salinities and Low Water Temperatures."
Carola M. Lehtinen and Aino-Maija Vesala.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 108-121.

628.168 33 ASTM

This paper documents tests conducted to establish the effect of ambient low salinity and low temperatures on the effectiveness of oil spill dispersants. Three dispersants were tested on two oils (fresh and weathered crude) and the results lead the authors to suggest that it is essential to make a careful choice of dispersants for use in low salinity environments and to be aware of the strong dependency on water temperature of each dispersant examined in these tests. A list of references is included and charts and diagrams supplement the text.

conferences / salinity / dispersants / pollution, oil / water temperature / oil spill countermeasures / oil spill research

D 73 EFFECTIVENESS OF THE REPEAT APPLICATION OF CHEMICAL DISPERSANTS IN OIL.
Randy Belore.
Environmental Studies Revolving Funds Report No. 006.
Ottawa, Ontario : S.L. Ross Environmental Research Ltd., 1985.
66 pp.

628.168 33 Bel

The primary objective of this study is to determine if changes in oil properties or chemical imbalances, caused by an initial application of dispersant, would reduce the effectiveness of a second application of dispersant. The results show that both the quantity of oil dispersed and the size distribution of the oil drops generated by the second application were similar to, or better than, those from the initial application of dispersant. The author concludes, therefore, that the second or repeat application is as effective as the first, at least under the test conditions present in the study.

oil spill countermeasures / oil spills / dispersants / pollution, oil / ESRF

D 74 "The Effects of Dispersants on Incorporation of Volatile Liquid Hydrocarbons into the Water Column."
Thomas J. McDonald, James M. Brooks, and Mahlon C. Kennicutt.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 203-223.

628.168 33 ASTM

This paper discusses a study which was conducted to assess the effect of dispersants on the incorporation of volatile liquid hydrocarbons into the water column from surface oil slicks. A laboratory tank was used to vary a number of parameters including oil type, dispersant type, time of dispersant application, wind speed and temperature. The actual experiments are described and the results are presented in written, graphic and tabular format. A short list of references is provided.

dispersants / oil spill research / oil spill countermeasures / water temperature / pollution, oil / conferences

D 75 EFFICIENCY AND RETENTIVITY TESTING AND PERFORMANCE OF SINKING AGENTS IN THE REMOVAL OF OIL SPILLS.
James G. Dick and Anatol Feldman.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EC-75-[illegible].
Ottawa, Ontario : Canada. Environmental Protection Service, 1975.
59 pp.

628.168 33 Dic

One method for the removal of oil spills on water involves the application of a sinking agent to the surface of the oil spill and the subsequent sinking of the spill. This report contains techniques for the testing of sinking agents to determine their efficiency in the removal of oil and their ability to retain oil once removed by the action of sinking. As well, this report provides information concerning the effects of the following: oil layer thickness initially; free fall distance for the sinking agent; temperature and oil type on the efficiency of removal and on the retentivity. A comprehensive list of references is included.

oil spills / pollution, oil / oil spill countermeasures / sorbents / sinking agents / oil spill research / technology / environmental protection

D 76 "Eleven Months in the Installation of an Arctic Mobile Drilling Structure."
B.M. Johansson, J.T. Stubbs and W. Janson.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. A1-A19.

623.812 4 Int 1984

This paper presents the major achievements of Dome's Arctic Islands building program which culminated in the successful set-down of a single steel drilling caisson on top of an underwater berm. Outlined in this paper is the design process which led to the conversion of a VLCC (very large crude carrier) into a mobile Arctic drilling caisson just over three months after initial conceptualization. Also highlighted are the technical developments which permitted this fast conversion and, as well, the construction of the underwater berm is discussed. This paper is illustrated and a short list of references is included.

conferences / Dome / Arctic Islands / caissons / arctic mobile drilling structure / Beaufort Sea / Canmar / technology / construction

D 77 ENERGETICS AS A TOOL FOR POPULATION ESTIMATES (RINGED SEALS AND POLAR BEARS).
Bruce Stacey.
Ottawa, Ontario : s.n., 1985. 36 pp.

599.745 Sta

Funded by the Northern Oil and Gas Action Program (NOGAP) and submitted to the Department of Indian Affairs and Northern Development (DIAND), this study describes a basic model designed to determine the abundance of ringed seals based on the energetics of polar bears. A polar bear energetics model computer programme is appended.

bears, polar / seals / NOGAP / DIAND / technology / energetics

D 78 ENVIRONMENTAL ASSESSMENT OF DREDGING TECHNOLOGIES. FINAL REPORT.
D.J. Thomas, L.C. Martin and J. Paul Ruffell.
Arctic Laboratories Limited. A.L.L. 63-6.
Yellowknife, N.W.T. : Canada. Department of the Environment. Environmental Protection Service, 1985. various pag.

333.916 41 Arc

This unpublished manuscript provides an overview of the state-of-the-art of dredging technology, and outlines procedures available for mitigation of environmental effects associated with dredging. As well, it provides an evaluation of the effectiveness of mitigative measures and describes the size and activities of the world dredging fleet. In addition, this report provides a review of the available information on dredging and environmental effects associated with dredging in the Beaufort Sea as well as other areas where significant dredging operations are undertaken. A list of references is provided and the report is illustrated.

dredging / environmental protection / environmental impact / technology / Beaufort Sea / pollution, industrial / sedimentation

D 79 "An Evaluation Program for Aerially Applied Dispersants."
Shawn D. Gill.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 161-165.

628.168 33 ASTM

The Canadian Offshore Aerial Applications Task Force (COAATF) was convened in 1979 to conduct laboratory and field studies in the practical effectiveness of the aerial application of oil spill dispersants under Canadian environmental conditions. Several studies undertaken by the COAATF are briefly reviewed in this paper, relative to their contribution towards this objective.

oil spill countermeasures / dispersants / pollution, oil / oil spill research / COAATF / aerial delivery / conferences

D 80 "Experimental Use of Dispersants for Spill Countermeasures on Arctic Beaches."
E.H. Owens, C.R. Forget and W. Robson.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 324-337.

628.168 33 ASTM

This paper discusses field experiments which were conducted on Arctic beaches to assess the effectiveness of dispersants in the cleanup of stranded oil. The potential for biological damage that can be incurred from the dispersed oil, the oil/dispersant combination, or from the dispersant itself is touched on but only the effectiveness of the dispersants in the removal of oil is studied in depth. The authors believe the results of their experiments are applicable to non-arctic environments since the primary factor that affected dispersant efficiency (wave energy) is a common element in all coastal environments.

oil spill countermeasures / oil spills / pollution, oil / dispersants / waves / tidal currents / Arctic / conferences

D 81 EXPERIMENTS WITH SCALE MODELS OF OIL COLLECTORS FOR SUBSEA WELL BLOWOUTS, PART 2.
Jerome H. Milgram, Christopher J. Von Alt and James J. Burgess.
Calgary, Alberta : Canadian Offshore Oil Spill Research Association, 1982. 36 pp.

628.168 33 Mil

This paper describes laboratory experiments and intermediate scale experiments on the collection of oil by an open bottom collector, above a blowout, with a marine riser above the collector. The results are analyzed and the identification of two scale-dependent parameters, and their effects on the experiments, are noted. The paper includes tables, diagrams and graphs.

COOSRA / subsea containment / blowouts / wells / oil spill countermeasures / pollution, oil / drilling, offshore

D 82 FEASIBILITY OF SURFACE DETECTION OF OIL UNDER ICE.
R. Gill.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EC-79-11.
Ottawa, Ontario : Canada. Environmental Protection Service, 1979. 40 pp.

628.168 33 Gil

In this study a number of detection methods are addressed to determine the feasibility of their application to the detection of oil in and under ice. These methods include radio frequency, acoustic, optical, nuclear and the gas sniffer. The study includes a discussion of various features of oil/ice interaction and ice thickness as it impacts on oil detection. Tables and charts are included and there is a list of references. The study was funded by the Arctic Marine Oilspill Project (AMOP).

oil detection systems / ice, sea / oil spills / technology / AMOP

D 83 A FEASIBILITY STUDY FOR USING REMOTE SENSING FOR ENVIRONMENTAL SURVEILLANCE OF ARCTIC PIPELINES.
Intera Environmental Consultants Ltd.
[Calgary, Alberta] : Intera Environmental Consultants Ltd., 1975.
n.p.

330.971 AHPI Ex. 24

This technical report presents an evaluation of the feasibility of using remote sensing techniques to monitor environmental change near Arctic pipelines and associated facilities. Prepared for Foothills Pipe Lines Ltd. (FPL), the report defines the environmental parameters, influenced by pipeline construction and operation, that can be sensed remotely and describes the means whereby these parameters would be sensed, including sensor used, method of application and cost. Numerous illustrations are included and there is a short bibliography.

technology / remote sensing / Arctic / environmental protection / environmental impact / FPL / pipelines / pipeline hazards

D 84 FIELD EVALUATION OF SEVEN OIL SPILL RECOVERY DEVICES.
L.B. Solsberg et al.
Canada. Environmental Protection Service. Technology Development Report EPS-4-EC-76-3.
Ottawa, Ontario : Canada. Environmental Protection Service, 1976.
81 pp.

628.168 33 Sols

This report documents a series of test programs in which seven mechanical oil skimmers were evaluated on the basis of four parameters: 1) oil recovery rate - the rate at which the device recovers oil; 2) oil recovery factor - the volume of oil recovered versus the volume presented to it; 3) oil content factor - the percentage of oil in the liquid recovered by the device; and 4) the emulsification factor - the percentage of water in the oil recovered by the device. As well as presenting the evaluations, the authors describe the test conditions and discuss the design of the skimmers, including suggestions for improvements in some design features.

skimmers / oil spill countermeasures / oil spills / technology

D 85 FINAL REPORT ON ARCTIC TANKER RISK ANALYSIS.
F.G. Bercha and Associates Limited.
Beaufort EIS Support Document 1982.
Calgary, Alberta : F.G. Bercha and Associates Limited, 1981.
various pag.

623.824 5 Ber

Prepared for Dome Petroleum Limited, this volume documents a risk analysis of the proposed plan to transport crude oil from the Beaufort Sea to southern Canada, over four alternative routes, by specially designed double-hulled ice-breaking tankers. The risk analysis is based on conventional tanker accident statistics, accident case studies, and Arctic tanker design information. In addition to the overall spill risk comparison, which shows the arctic tanker to operate with 120 to 160 times less risk than the conventional tanker, sensitivity analysis methods are applied to evaluate the risk reduction attributable to each of the Arctic tanker's design features. The greatest benefits result from the Arctic tanker's strengthened double hull, segregated ballast construction, and tank inerting system.

risk analysis / transportation, marine / Beaufort Sea / Dome / EIS / tankers / ice-breaking vessels / oil spills / technology / ice, sea / explosions / fire

D 86 "The First Large Scale Use of High Strength Lightweight Concrete in the Arctic Environment."
A.E. Fiorato, A. Person and D.W. Pfeifer.
In SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984.
21 pp.

627.98 Arc 1984

This paper describes the development and application of high-strength lightweight concrete in the construction of the concrete island drilling system (CIDS). Design requirements are discussed, including the need for a concrete with a low unit weight to minimize draft during towing, high-strength for structural resistance, and entrained air for long-term freeze-thaw resistance. The design and testing program conducted to meet these requirements is also discussed. The paper is illustrated and a short list of references is included.

conferences / concrete / technology / CIDS / engineering / Arctic / ice, sea / adfreezing

D 87 "Floating Fuel Production Facility for the Beaufort Sea."
R.B. Barnes.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. n.p.

622.182 82 CODD 1983

After overviewing Dome's Beaufort Sea exploration activities, this author documents a study performed to determine the feasibility of delivering a floating fuel production facility to provide a local fuel source for industry exploration needs in the Beaufort Sea and, potentially, community fuel needs at a later time. The concept involves mounting a diesel fuel production facility on a converted existing tanker. Environmental protection and ice surveillance measures are described and the status of the project is reported showing that conceptual engineering is complete and all systems are configurated and costed in detail.

Dome / Beaufort Sea / exploration / hydrocarbon production / tankers / environmental protection / ice, sea / ice management / oil detection systems / technology / conferences

D 88 FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985.
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. 2 vol.

620.411 3 Off

Papers presented at the 1985 International Symposium on Offshore Mechanics and Arctic Engineering are reproduced in this volume. The papers are technical in nature and most include illustrations and lists of references. As well, an abstract of each paper is provided.

conferences / technology / engineering / drilling, offshore / oil rigs / Beaufort Sea / ice / ice, sea / ice floes / ice ridges / ice scour / geotechnology / artificial islands / hydrology / icing / pipelines, offshore

D 89 FROST ACTION AND ITS CONTROL; A STATE OF THE PRACTICE REPORT PREPARED BY THE TECHNICAL COUNCIL ON COLD REGIONS ENGINEERING OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS.
edited by Richard L. Berg and Edmund A. Wright.
Technical Council on Cold Regions Engineering Monograph.
New York, New York : American Society of Civil Engineers, 1984. 145 pp.

624.151 36 Berg

This volume contains four articles on current geotechnological engineering in terms of construction and operation in the presence of frost heave conditions and freeze-thaw cycles. Each article is accompanied by a bibliography. Subject and author indices are provided.

technology / frost heaving / thawing / soil temperature / ground temperature / geotechnology / road construction / pipeline design / oil well design / engineering / steel structures / oil rigs / ground thermal regime

D 90 FROST HEAVE CONSIDERATIONS FOR THE ALASKA HIGHWAY GAS PIPELINE PROJECT: FROST HEAVE PROGRAM DESCRIPTIONS AND NORTHERN PIPELINE AGENCY POSITION PAPERS.
Foothills Pipe Lines (Yukon) Ltd. and Northern Pipeline Agency.
s.l. : s.n., 1979-80. n.p..

551.38 Fro

When a chilled pipeline crosses areas of unfrozen soil the potential for frost heave exists if a source of water is available and if the soil is susceptible to the growth of ice lenses. Foothills Pipelines (Yukon) Ltd.'s (FPL(Y)) ten component frost heave design program, relative to the Alaska Highway Gas Pipeline project (AHGP), is described in this volume. In addition, the Northern Pipeline Agency position papers on this frost heave design program are included. These position papers re-state the design objectives of the frost heave program and review the mitigative design modes considered by FPL(Y). Recommendations for dealing with weaknesses in the program are made and alternative design modes are proposed for consideration.

FPL(Y) / AHGP / Northern Pipeline Agency / pipeline design / frost heaving / soil temperature / ice, ground / pipeline construction

D 91 FROZEN GROUND ENGINEERING.
Arvind Phukan.
Englewood Cliffs, New Jersey : Prentice-Hall Inc., 1985. 336 pp.

624.150 911 Phu

The purpose of this text is to present the state-of-the-art in frozen ground engineering suitable for instruction at the university graduate level and for practising engineers specializing in Arctic engineering. The main topics discussed in the book include the engineering behavior of frozen soil materials, design concepts, analyses of foundations for different structures and field investigation techniques in frozen ground. Illustrations and tables are included and provide information useful for design and construction. The appendices include a list of references, a glossary and an index.

engineering / permafrost / frost heaving / soils / soil temperature / Arctic / Arctic conditions / technology / construction / slope stability / drilling / ground temperature

D 92 "Future Ice-Breaker Design."
B.M. Johansson and C.R. Revill.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C. 1986. [Vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 169-200.

380.509 11 IPTC

The authors of this paper believe that the design of a future commercial ice-breaker, for service in the Canadian Arctic, should recognize the requirements inherent in the ongoing hydrocarbon development of the Arctic. Such a vessel should be capable of operating on a year-round basis and be self-sufficient with minimum reliance on outside facilities. This technical paper discusses the design features and operational requirements of ice-breaking vessels for use in the Arctic. There are many illustrations included and a list of references is provided.

conferences / Arctic / ice-breaking vessels / technology / engineering / ice, sea / transportation, marine / ice ridges

D 93 "Geology of Deep Water, Arctic Poses Challenges."
Jim Redden.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985. pp. 5-15.

622.182 82 Har 1985

In this article, the technology required to explore the oil and gas resources in deep water and arctic conditions is examined. The need for less expensive designs for mobile offshore rigs capable of working the deep water, and in the Arctic, is identified along with other technological challenges facing industry. The two distinct environments - the Arctic and deep water - are considered. Regions studied include the Atlantic Ocean, Gulf of Mexico and the Pacific Ocean in addition to the Beaufort, Chukchi and North Seas and the Arctic Ocean. As well, the potential reserves of oil and gas under the seabeds of the deep waters of the world are discussed.

technology / Arctic / exploration / drilling, offshore / oil rigs / hydrocarbon reserves / Atlantic Ocean / Arctic Ocean / Gulf of Mexico / Pacific Ocean / Beaufort Sea / Chukchi Sea / North Sea

D 94 "Geomembrane Liner Performance in the Arctic."
Lynne M. Anderson.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986. pp. 572-581.

620.411 3 Col 1986

This paper describes procedures and results of experiments conducted to examine the physical performance characteristics, and resistance to hydrocarbon degradation, of several geomembrane liner materials under simulated arctic conditions.

Arctic / technology / geomembrane liners

D 95 "A Geotechnical Approach to the Solution of Borehole Stability Problems in Beaufort Sea Operations."
David Wilkie.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD), [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

Since 1976, Dome Petroleum has been actively engaged in drilling exploratory wells in the Beaufort Sea. Borehole stability has been a continuing problem in drilling these soft, unconsolidated tertiary sediments. The problems encountered have included excessive drag and pipe sticking. This article describes tests conducted to define the cause of the problems and also the development of suitable solutions.

Dome / Beaufort Sea / drilling, offshore / geotechnology / mineral deposits / conferences / sedimentology

D 96 GUIDELINES ON THE USE AND ACCEPTABILITY OF OIL SPILL DISPERSANTS, 2ND EDITION.
Canada. Environmental Protection Service.
Canada. Environmental Protection Service. Regulations, Codes and Protocols Report EPS 1-EP-84-1.
Ottawa, Ontario : Canada. Environmental Protection Service, 1984. 31 pp.

628.168 33 Can

These guidelines on the use and acceptability of oil spill dispersants are intended for the information of personnel involved in oil spill cleanup operations, and for manufacturers of the dispersants. Directions with regard to when and where dispersants should be considered for use, and the minimum requirements for acceptance of a dispersant by the Department of the Environment (DOE) are provided and general criteria for making dispersant use decisions are included.

oil spill countermeasures / dispersants / environmental impact / toxicity / government / DOE

D 97 "A Highly Mobile Rig for the North Slope of Alaska."
David Mochizuki.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 14-16, 1981.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1981

This speaker describes the development and transportation of a mobile rig (Rig 26-E) for the North Slope of Alaska. The North Slope of Alaska is the area of the Brooks Range stretching northward to the Arctic Ocean. The author reports that the rig is in service, for Sohio, at Prudhoe Bay, a flat arctic "desert" approximately 250 miles north of the Arctic Circle on the Beaufort Sea coast. Design considerations and construction are discussed in some detail and illustrations of the rig are included.

oil rigs / technology / North Slope, Alaska / Alaska / Prudhoe Bay, Alaska / Sohio / drilling, offshore / Beaufort Sea / transportation / arctic mobile drilling structure / conferences

D 98 "Ice Interactions with Structures: Recent Developments and Future Trends."
K.R. Croasdale.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

Theories for ice-structure interaction under Arctic conditions, particularly in the Beaufort Sea, are examined in this paper. The distinction between exploration and production structures is emphasized in terms of typical ice design scenarios and accompanying ice management schemes. Major differences in ice interaction cases between structures in landfast ice areas and those in the polar pack are also documented. The data presented arise from experience with real structures as well as major field experiments.

workshops / ice, sea / ice management / Arctic / technology / oil rigs / Beaufort Sea / steel structures / icebergs / caisson retained islands / drillships / artificial islands / drilling, offshore

D 99 "Ice Related Research and Development Leading to the Design of Esso's Caisson Retained Island."
S.G. Stevens and K.N. Wood.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. 11 pp.

622.182 82 CODD 1983

The design of Esso's caisson retained island, which was conceived in 1975 as a means of reducing the quantity of fill required to build artificial islands in the Beaufort Sea, is the result of theoretical and experimental analyses performed over several years. This paper commences with a summary of the overall design procedure. Selected ice phenomena are discussed to demonstrate the diverse means by which theory and experiment can interact and culminate in design criteria. Illustrations are provided and there is a list of references.

Esso / caisson retained islands / artificial islands / Beaufort Sea / technology / ice, sea / ice ridges / ice floes

D 100 "Ice/Structure Interaction Research Needs."
Tom Zimmerman.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986. various pag.

665.502 8 Arc 1986

In May and June of 1986 a series of workshops, dealing with ice/structure interaction, sponsored by the Arctic Offshore Technology Conference, were held in Calgary. The workshops looked at the state-of-the-art of ice/structure interaction, identified gaps in the knowledge that currently exists in Canada and made recommendations regarding research needs. This paper summarizes the highlights from the workshop discussions. Recommendations regarding research needs are appended.

conferences / ice, sea / ice / exploration / drilling, offshore / technology / Arctic / icing

D 101 ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY, 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984. 2 vol.

623.812 4 Int 1984

The main volume of this set presents the texts of 14 papers presented at the subject workshop. The second volume, which is a supplement, presents three further papers and the text of discussions on the content of selected papers from both volumes. The papers are very technical in nature, and most are illustrated and contain lists of references.

conferences / ice, sea / ice-breaking vessels / Arctic / exploration / transportation, marine / technology / ice management / engineering

D 102 "Icesemi-Computer Software to Analyze Ice Interaction with Semi-Submersibles."
Norman F.B. Allyn and J.S.Q. Tseng.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
4 pp.

665.502 8 Arc 1986

As activity proceeds in sub-arctic or marginal ice areas, the potential exists to extend the use of conventional semi-submersible drilling or production rigs to year-round use rather than just open-water operations. The assessment of the ability of a moored semi-submersible to remain on station and resist forces from various ice conditions has relied in the main on basic calculations and model testing. This paper discusses a computer software package called "Icesemi" which analyzes ice interaction with semi-submersibles.

conferences / technology / drilling, offshore / oil rigs / ice, sea / wind / waves / currents / Arctic

D 103 "The Importance of Contingency Measures in Determining Outer Continental Shelf Oil and Gas Development."
Raymond R. Emerson.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981. pp. 571-575.

628.168 33 Osc 1981

Oil spills are one of the major concerns associated with oil and gas development along the Outer Continental Shelf (OCS). The U.S. government plans lease sales at the rate of seven per year and this paper discusses the selection of a leasing plan that offers the maximum production potential within an acceptable level of environmental risk. The author describes a model which couples local meteorology and physical oceanography to produce trajectories of hypothetical oil spills. These trajectories are then used to establish overall probabilities of an oil spill contacting specific coastal areas and habitats.

conferences / oil spills / OCS / oil spill research / environmental protection / environmental impact / meteorology / oceanography / Gulf of Alaska / Alaska / U.S.A. / government / oil spill countermeasures

D 104 "Impulse Radar Sounding of Frozen Ground."
A. Kovacs and R.M. Morey.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 28-40.

551.384 Wor

This paper describes the use of impulse sounding for probing frozen ground. The authors discuss the use of this radar system to explore various subsurface ground features in Alaska, including the mapping of massive ice along a segment of the Alyeska Pipeline and the profiling of ice depth in several pingos near Prudhoe Bay, Alaska. Many illustrations are used, including graphic records of radar profiles, in this technical presentation.

workshops / radar systems / ice, ground / Alaska / Alyeska / Prudhoe Bay, Alaska / pingos / technology / mapping

D 105 "In-Place Burning of Prudhoe Bay Oil in Broken Ice."
Nelline K. Smith and Anibal Diaz.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA., FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985. pp. 405-409.

628.168 33 Osc

The authors of this paper examine small and large scale experiments performed to explore the range of conditions in which oil slicks of Prudhoe Bay crude can be burned in broken ice and to determine the efficiencies of such burns. The laboratory and tank tests are described and the results of the tests, together with some discussion and conclusions, are reported here.

conferences / Prudhoe Bay, Alaska / in situ burning / oil spills / oil spill countermeasures / ice, sea / Beaufort Sea / pollution, oil

D 106 "Instrumenting an Arctic Drilling Platform."
R.K. Atwater.
In SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984. 28 pp.

627.98 Arc 1984

This author discusses the role that an instrumentation program, conducted in conjunction with exploratory drilling island activities, can play in providing a means for determining environmental forces and the associated responses of an offshore structure to these forces. The uncertainties associated with ice forces, soil properties, and oceanographic environmental conditions are considered in terms of engineering and design techniques for artificial islands and mobile offshore drilling units in the Arctic.

conferences / technology / artificial islands / Arctic / ice, sea / sediments / waves / currents / erosion / engineering / arctic mobile drilling structure / meteorology

D 107 INTERNATIONAL DIRECTORY OF OIL SPILL CONTROL PRODUCTS AND SERVICES; 1985.
Oil Spill Intelligence Report.
Boston, Massachusetts : Cahners Publishing Company, 1985. 64 pp.

628.168 33 Oil 1985

This directory lists oil spill control products, categorized under broad subject headings (booms, sorbents, dispersants, skimmers, for example) and then listed alphabetically by company name. Indexes and an abbreviations list are appended.

directories / oil spill countermeasures / fireproof booms / sorbents / skimmers / dispersants

D 108 "Kulluk Extends the Arctic Offshore Drilling Season."
E.W. Frankovich.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

This paper reviews the performance of "Kulluk", Beaudril's conically shaped drillship operating in the Beaufort Sea. In addition to describing this drillship's first and second seasons of operation on behalf of Gulf Canada, this paper highlights the design innovations which enabled the unit to operate nearly twice as long each year as modified conventional drillships operating in the Beaufort Sea.

workshops / drillships / Beaufort Sea / technology / ice management / drilling, offshore / BeauDril / Gulf / exploration / ice-breaking vessels / Kulluk

D 109 "Local and Global Strength Aspects for Ice-Breaking Ships."
G.A.M. Ghoneim.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C. 1986. [Vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : D.F. Dickins Associates, 1986.
pp. 105-147.

380.509 11 IPTC

The design of future Arctic vessels requires accurate evaluation of the ice forces and pressures they will encounter. This technical paper deals with the ramming scenario of ice-breaking. Results from full scale ship tests, analytical models, and numerical analysis techniques are used to provide ship designers, builders, and operators with guidelines and recommendations for the design of safe, efficient and economic Arctic vessels. The paper is illustrated and a list of references is provided.

conferences / Arctic / ships / ice-breaking vessels / ice, sea / technology / transportation, marine

D 110 "Low Temperature Welding and Corrosion of Arctic Grade Steels."
H.B. Luft.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
18 pp.

665.502 8 Arc 1986

Manual field repair welding or modifications to Arctic offshore structures and vessels must frequently be performed at subzero temperatures. Savings in time and cost might be realized if these operations could be performed without preheating the steel prior to welding. This paper describes the development of a manual welding procedure suitable for ambient temperatures as low as -30°C without preheating. To evaluate corrosion susceptibility, several laboratory tests were conducted and the results of these tests are also discussed here. This paper is illustrated.

conferences / Arctic / drilling, offshore / oil rigs / drillships / welding / corrosion / steel structures

D 111 MANAGEMENT OF SMALL ICE MASSES.
K.G. Anderson et al.
Environmental Studies Revolving Funds Report No. 042.
Ottawa, Ontario : Dobrocky Seatech Limited, 1986. 195 pp.

627.98 And

This study, published under the auspices of the Environmental Studies Revolving Funds (ESRF), looks at existing ice mass management systems and alternative methods that could be used to increase the success rate of deflecting small ice masses, thereby allowing offshore operators working in ice infested waters to reduce ice-related downtime. The study is presented in four phases: 1) a review of past and present ice management techniques; 2) establishment of design criteria; 3) conceptual design of new or improved techniques; and 4) feasibility analysis of conceptual designs and design of preferred concepts. Maps, graphs, tables and diagrams are included and there is a list of references.

ESRF / ice / ice, sea / ice management / ice floes / icebergs / drilling, offshore / technology / hydrology

D 112 "Marine Pipelining in the Canadian Arctic."
Ollie M. Kaustinen.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 169-184.

333.823 05 Arc 1980

In this technical paper, the author describes the marine pipelining proposals of the Polar Gas project for transporting natural gas from the Canadian Arctic frontier to southern markets. The paper touches on socio-economic and environmental aspects briefly, but the main focus is on the proposed pipeline's routes and the technology involved in the design and construction of a pipeline over such a long and climatically varied route.

pipelines, offshore / pipeline construction / pipeline design / Polar Gas / arctic conditions / natural gas / socio-economic aspects / environmental assessment / pipeline routes

D 113 "Measurement and Prediction of the Effectiveness of Oil Spill Chemical Dispersants."
Donald Mackay et al.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 38-54.

628.168 33 ASTM

Recent developments in effectiveness testing of dispersants are discussed in this technical paper. A flume test system is described in which an attempt is made, in a laboratory setting, to simulate a sea test involving continuous application of oil on to the water surface - causing a slick which can be observed and photographed before dispersant is sprayed on to the oil. This article is illustrated and a list of references is provided.

pollution, oil / dispersants / oil spill countermeasures / conferences

D 114 THE MECHANICS OF FROZEN GROUND.
N.A. Tsytovich.
Toronto, Ontario : McGraw Hill Book Company, 1975. 426 pp.

624.150 911 Tsy

Translated from the Russian, this book sets forth the basic laws established by the author - a USSR scientist and engineer - for frozen soil mechanics as a science. As well, a number of solutions obtained for problems in the mechanics of frozen ground are presented and the practical application of the theories is discussed. Particular attention is given to the stability of permafrost soils and to bases and foundations on permafrost soils whose frozen state is retained or intensified. This book is indexed and each of the nine main sections includes a list of references in addition to the general comprehensive bibliography provided.

permafrost / U.S.S.R. / construction / engineering / slope stability / ground temperature / frost heaving / technology / arctic conditions

D 115 METHODS FOR THE FRACTURING OF ICEBERGS.
P.H. Gammon and J.C. Lewis.
Environmental Studies Revolving Funds Report No. 011.
Ottawa, Ontario : Environmental Studies Revolving Funds, 1985.
91 pp.

620.411 3 Gam

Funded by the Environmental Studies Revolving Funds (ESRF), this study investigates one aspect of the general problem of iceberg management in support of the development of offshore hydrocarbon resources. Specifically, the problem of iceberg size reduction, through iceberg fracturing, is addressed and the authors suggest that the method of cutting an iceberg with an electrically heated small diameter tube is the most practical approach to iceberg fracturing. There is some discussion of other methods for inducing the large-scale fracturing of icebergs, including explosives, thermal fracture of ice, and various types of directed beams (radiation, fluid or particles). This technical study includes diagrams and a list of references.

ESRF / icebergs / ice management / technology / ice-breaking

D 116 MICROWAVE SYSTEMS FOR DETECTING OIL SLICKS IN ICE-INFESTED WATERS: PHASES II AND III.
Centre for Cold Ocean Resources Engineering.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EC-80-3.
Ottawa, Ontario : Canada. Environmental Protection Service, 1980.
63 pp.

621.381 1 Cen

The potential use of microwave systems for detecting oil in an ice regime is discussed in this study, which was conducted under the auspices of the Arctic Marine Oilspill Project (AMOP). Two ice regimes - one corresponding to waves in ice and the other depicting an iceberg - are analyzed and the results discussed. The paper is illustrated and references are included.

oil detection systems / oil spills / radar systems / AMOP / ice, sea / technology

D 117 "Mobile Arctic Drilling Structure (MADS).
S.B. Wetmore.
In SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984.
25 pp.

627.98 Arc 1984

The mobile Arctic drilling structure is a sloping-sided, steel gravity structure which is capable of operating in water depths from 15 to 40 feet. This paper outlines the basic design features of the structure and also presents an overview of recent design modifications and changes in ice load analyses and logistical capacity. The text is supplemented by illustrations and a short list of references is provided.

conferences / arctic mobile drilling structure / Arctic / Beaufort Sea / steel structures / technology / drilling, offshore

D 118 "The Mobile Arctic Island (MAI) for Drilling and Production."
E.M. Berlie, K. Pullerits and S.G. Sheps.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

The design bases, technical merit and economic advantages of Bow Arctic Resources' Mobile Arctic Island (MAI), as a drilling and production structure, are discussed in this paper. The MAI concept centers on the ability of a converted tanker to cope, as a bottom founded structure, with environmental conditions of the Beaufort Sea. The tanker is cut in half laterally and the two halves are welded together side-by-side; the MAI screeds itself onto a sand mattress or berm and is set down by taking on ballast water.

workshops / drilling, offshore / Beaufort Sea / MAI / Bow Arctic Resources / tankers / technology / ice, sea / drillships / arctic mobile drilling structure

D 119 MODEL TESTS IN ICE OF A CANADIAN COAST GUARD R-CLASS ICE-BREAKER.
Jean-Claude Tatinclaux.
U.S. Army Cold Regions Research and Engineering Laboratory. Special Report 84-6.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1984. 24 pp.

623.828 Tat

This report presents the results of resistance and propulsion tests, in level ice, of a 1:20 scale model of an R-class ice-breaker of the Canadian Coast Guard. On the basis of the model test results, full-scale performance is predicted and compared with full-scale trials data. Photographs, charts and tables supplement the text and a list of literature cited is included.

ice-breaking vessels / engineering / technology / ice

D 120 MODEL TESTS OF THE IMPERIAL MONOPOD DRILLING UNIT.
Earl & Wright, Consulting Engineers.
Offshore Technology Report No. OTC-73-40.
Calgary, Alberta : Arctic Petroleum Operators' Association, 1973.
2 microfiche.

MF APOA 110-09

This document reports on the test set-ups and test results of model studies of the Imperial Arctic monopod drilling unit. The studies were conducted to determine the vessel's seakeeping, towing and lowering characteristics. Motions and accelerations were measured during regular and irregular wave seakeeping tests and the results are reported here. The vessel's ballasting characteristics are also documented in this very technical study.

drillships / drilling, offshore / Imperial Oil / waves / wind / technology / APOA

D 121 "The Monopod Jackup Platform. A Mobile Drilling System for Offshore Arctic Application."
Nabil Daoud and Sherman B. Wetmore.
In SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984.
32 pp.

627.98 Arc 1984

The monopod jackup platform is a mobile arctic drilling system designed to operate in water depths ranging from 37 to 90 feet in the Arctic. This paper describes the analytical methods used in the development of this drilling system, including the investigation of the dynamic interaction between ice, structure and soil, open water characteristics, foundation analysis and detailed structural analysis. A list of references is included and diagrams supplement the text.

conferences / arctic mobile drilling structure / Arctic / drilling, offshore / technology / ice, sea / ice ridges

D 122 "Moving Towards Production in the Beaufort Sea."
Bruce Smith, John Fitzpatrick and Bengt Johansson.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This paper describes two Arctic exploration drilling systems and a production drilling unit developed for application in offshore Arctic regions by Canmar. The authors review the company's experience in Arctic offshore drilling and emphasize the design and operational improvements included in these new systems. The systems are the Single Steel Drilling Caisson, the Third Generation Drilling Caisson and the Canmar Mobile Arctic Platform.

workshops / Canmar / drilling, offshore / caissons / arctic mobile drilling structure / Arctic / technology / steel structures / ice management

D 123 "Multi-modal Ice-Management System."
Charles M. Aker.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY, 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. G1-G16.

623.812 4 Int 1984

Ice management is a term used to describe various methods of enabling vessels to manoeuver in ice, and drill rigs and other structures to survive in an ice environment. After presenting a table of regional ice management characteristics, in different regions of the Beaufort Sea and Arctic Islands, the author of this technical paper describes the multi-modal system of ice management which is based on the principle of a high-mass flow high-velocity waterjet. Illustrations are included and there is a list of references.

conferences / ice, sea / ice management / technology / Beaufort Sea / Arctic Islands / engineering

D 124 MULTI-YEAR ICE THICKNESS DISTRIBUTION IN THE BEAUFORT SEA DETERMINED BY AIRBORNE IMPULSE RADAR.
Centre for Cold Ocean Resources Engineering.
C-CORE Publication No. 80- . Beaufort EIS Support Document 1982.
St. John's, Newfoundland : Centre for Cold Ocean Resources Engineering, 1980. n.p.

551.343 Cen

Prepared for Canadian Marine Drilling Ltd. (Canmar) and Esso Resources Canada Ltd., this report documents the first recorded use of impulse radar, from a fixed-wing aircraft, to characterize multi-year ice in the Tuktoyaktuk area of the Beaufort Sea. An analysis of the data collected with a view to determining the impulse radar's capabilities is presented in this report. Illustrations are included and there is a list of references.

Canmar / Esso / EIS / ice / ice, sea / radar systems / Beaufort Sea / Tuktoyaktuk, N.W.T.

D 125 "A New Approach to Relief Well Drilling in the Canadian Beaufort Sea."
W.A. Scott and B.D. Wright.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

The actual text of this address is not reproduced. Instead, paper copies of a slide presentation are included. The content addresses the Canadian government's requirement for same season relief well drilling by Beaufort Sea operators. The intent of this requirement is to ensure that, in the event of a blowout, it must be possible to commence and complete a relief well in that same season. The environmental conditions in the Beaufort Sea are described briefly along with the exploratory drilling systems which have been utilized to date. The new approach to relief well drilling refers to Beaudril's Kulluk system, capable of providing year-round relief well drilling, which is described in considerable detail in this presentation.

workshops / drilling, offshore / BeauDril / Kulluk / Beaufort Sea / technology / government / environmental monitoring

D 126 NOVEL COUNTERMEASURES FOR AN ARCTIC OFFSHORE WELL BLOWOUT.
R. Abdelnour et al.
Canada. Environmental Protection Service: Economic and Technical Review Report EPS-3-EC-77-14.
Ottawa, Ontario : Canada. Environmental Protection Service, 1977. 135 pp.

628.168 33 Abd

The problems of cleaning up oil spilled by an offshore well blow-out in the Arctic are reviewed in this technical report. In situ burning is recommended here as the most promising disposal technique and various methods are proposed for holding the oil in a burnable layer. This study reviews the conditions to be expected at the site of an Arctic well blowout, and shows that the techniques and equipment employed in cleaning up temperate region oil spills are largely inapplicable in the Arctic environment. Recommendations for further study are made and a lengthy bibliography is provided.

oil spill countermeasures / arctic conditions / blowouts / in situ burning / pollution, oil / oil spills

D 127 "Obtaining Precise Temperature Measurements in Abandoned Offshore Petroleum Exploration Wells."
Alan Taylor and Allan Judge.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 95-99.

551.384 Wor

This paper describes the development of an acoustic telemetry system for measuring precise temperatures in abandoned offshore hydrocarbon exploration wells. The system is intended to handle the measurement and recording of from twelve to 20 temperatures, in the upper 1000m of an offshore well, in up to 400m of water, at intervals of a day or less, for at least two years. Illustrations are included and a short list of references is provided.

workshops / telemetering / ground temperature / water temperature / oil wells / oil rigs / geophysics

D 128 "Offshore Permafrost Well Design Lateral Soil Movement-Induced Bending Strains."
S.W. Laut and M.T. Bradshaw.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. II].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 47-51.

620.411 3 Off

Offshore production wells placed through permafrost are subjected to lateral soil forces when production of hot oil thaws the surrounding permafrost. Previous research indicates lateral soil movements in the Canadian Beaufort Sea to be large enough to cause several bending strains in the well casing, if the well casing moves with the soil. This paper discusses a testing program to determine bending strains and the effect of varying soil properties and well casing rigidity. Results are presented which show well casing strains to be lower than first predicted as the well casing does not move exactly with the soil.

conferences / oil well design / oil wells / Beaufort Sea / permafrost / soils / technology

D 129 OFFSHORE PIPELINE DESIGN, ANALYSIS, AND METHODS.
A.H. Mousselli.
Tulsa, Oklahoma : PennWell Publishing Company, 1981. 193 pp.

665.544 Mou

This book provides a consolidated presentation of the various principles and practices of offshore pipeline design, analysis and methods. The key elements discussed relate to safe efficient design and construction of submarine pipelines and risers. Photographs, tables, and graphs are used extensively throughout and the book has both a bibliography and an index.

hydrocarbon production / pipeline construction / pipeline design / pipeline hazards / pipelines, offshore / natural gas / North Sea / pipeline testing

D 130 OFFSHORE PIPELINE DESIGN ELEMENTS.
John B. Herbich.
New York, New York : Marcel Dekker Inc., 1981. 233 pp.

621.867 2 Her

The objective of this book is to describe methods used in the design and analysis of submerged offshore pipelines. The author addresses the environmental factors affecting the pipeline, such as corrosion, forces acting on offshore pipelines, scour or erosion of bottom material around the pipeline and the possibility of underwater slides. The main emphasis of the book is on the design process which must accommodate the highly variable environment in which the pipelines are placed. There is a short bibliography provided and the book has an index.

pipeline design / pipelines, offshore / pipeline hazards / corrosion / erosion / tidal currents / waves / storms / sedimentation / tidal scour

D 131 "An Oil Slick Igniter for Remote Areas."
K.M. Meikle.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. ATLANTA, GEORGIA, MARCH 2-5, 1981.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1981.
pp. 617-621.

628.168 33 Osc 1981

This paper discusses the use of aerially deposited igniters, to ignite oil on the surface of melt pools on ice floes, in the Arctic and other remote locations where access is difficult. The author describes the design and performance of prototypes under both laboratory and field conditions and declares the results satisfactory. It is noted that a substantial amount of spilled oil that would be prohibitively unsafe or expensive to remove by other means can be burned off in order to reduce adverse effects on the environment.

conferences / oil spills / Arctic / ice floes / burning agents / in situ burning / aerial delivery / ice, sea / technology / Beaufort Sea

D 132 OIL SPILL BARRIERS AND THEIR USE.
L. Anna Robertson.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EC-81-5.
Ottawa, Ontario : Canada. Environmental Protection Service, 1981.
95 pp.

628.168 33 Rob

An oil spill barrier is a device designed to control the spread of oil, or other floating contaminants, and this report describes various types of such equipment, both commercial and improvisational, which have been applied in countermeasures operations in Canada. Deployment techniques and ancillary equipment are also reviewed in terms of the various environments and conditions in which a barrier might be used. A compendium, which provides a summary of the physical characteristics and dimension of commercially available barriers, is included.

oil spill countermeasures / fireproof booms / pollution, oil

D 133 OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. 465 pp.

628.168 33 ASTM

This volume contains the texts of papers presented to the 1982 Oil Spill Chemical Dispersants Symposium sponsored by the American Society for Testing and Materials. A list of references is provided with each paper and there is a subject and name index.

oil spill countermeasures / oil spill research / pollution, oil / conferences / dispersants / environmental impact / ecology, marine / toxicology

D 134 OIL SPILL COUNTERMEASURES FOR THE SOUTHERN BEAUFORT SEA.
W.J. Logan, D.E. Thornton and S.L. Ross.
Technology Development Report EPS-3-EC-77-6/7 Beaufort Sea Project Technical Report 31a/31b.
Ottawa, Ontario : Canada. Environmental Protection Service, 1975.
2 vol.

628.168 33 Log

The findings of the Environmental Protection Service's portion of the Beaufort Sea Project (oil spill countermeasures) are presented here in two volumes. Technical Report 31a contains the summary information and Report 31b, which is an appendix to 31a, contains the details of the information. The feasibilities of controlling and cleaning up an oil spill in the Beaufort Sea, as the result of an exploratory well blowout, are discussed. Particular emphasis is placed on large spills. It is the consensus of the authors, after a review of technology, that the development of satisfactory countermeasures for oil spills in the Arctic require a large-scale technological effort. This study is viewed as a first step; it analyses the current state of knowledge and technology and identifies gaps where research is required.

oil spill countermeasures / Beaufort Sea / climatology / oceanography / ice, sea / technology / pollution, oil / oil detection systems / remote sensing / in situ burning / environmental protection / blowouts / fireproof booms / skimmers / sorbents

D 135 "Oil Spill Workshop: Shoreline Protection and Cleanup: Results of Panel Discussion."
Bill Pistruzak and Peter Blackall.
In PROCEEDINGS OF THE EIGHTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 7-9, 1979.
Arctic Petroleum Operators' Association and the Canadian Petroleum Association.
Calgary, Alberta : Arctic Institute of North America, 1979.
pp. 79-87.

333.823 05 Arc 1979

The results of a panel discussion held at the Oil Spill Workshop portion of the subject workshop are summarized in the article. The main focus of discussion is shoreline protection and methods of cleanup. Previous research and development projects are reviewed as well as the progress made on recommendations which had been approved at earlier sessions. The decisions reached during the present discussions are technical in nature and include recommendations concerning dispersants, dyking and berming, burning and manual cleanup.

oil spills / oil spill countermeasures / technology / pollution, oil / arctic conditions / environmental protection / workshops

D 136 "Oil Spills. State-of-the-Art Review."
W.M. Pistruzak.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983.
pp. 173-199.

333.823 05 Arc 1983

Major oil spill technology, developed over the previous three years, is the focus of this paper. The content of the discussion is fairly technical in nature and, using illustrations in the form of slides, various examples of the technology employed against offshore oil spills are examined.

workshops / oil spill countermeasures / drilling, offshore / technology / oil spill research / COOSRA / oil burners / fireproof booms / skimmers / subsea containment / oil detection systems / dispersants

D 137 "On Measuring Large Scale Ice Forces. Presentation to POAC 81, the Sixth International Conference on Port and Ocean Engineering Under Arctic Conditions."
M. Metge, B. Danielewicz, and R. Hoare.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA), 1981. 1 microfiche.

MF APOA 180-1

A method by which in situ measurements of ice floes were made, during the collision of multi-year ice floes with Hans Island, is described in this short technical paper. It is explained that hydrocarbon production in the Beaufort Sea requires oil rigs, and other stationary marine structures, to be able to withstand the forces exerted by extremely large features, such as multi-year floes exceeding 10km in diameter and 8m in thickness. The information gathered by Dome Petroleum personnel, from the Hans Island collision, will be applied in the design and construction of marine structures.

icebergs / Beaufort Sea / hydrocarbon production / safety measures / oil rigs / marine terminals / drilling, offshore / Hans Island, N.W.T. / Dome

D 138 "On Some Arctic Drilling Units Recently Constructed in Japan."
H. Kitagawa and Y. Matsushima.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. II].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 75-81.

620.411 3 Off

Since the beginning of the exploration in the Beaufort Sea, artificial, caisson retained, and other islands have been constructed for drilling purposes. This paper describes the main features of five arctic drilling units constructed in Japanese shipyards, including construction procedures for one of these units.

conferences / artificial islands / caisson retained islands / construction / engineering / Japan / Beaufort Sea / Arctic

D 139 "Operation, Testing and Design of Vessels in the Canadian Beaufort Sea."
A.C. Churcher, B.M. Johansson and J. Duff.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

The authors of this paper explain that in the development of offshore vessels, for use by Canmar in the Beaufort Sea, the normal procedure of designing, testing and then operating was, in essence, reversed. Rather, it is reported, conventional vessels were initially sent out to operate in new areas, with very different from usual ice conditions, and operational experience and damage information was gathered. Test programs were then designed and this paper deals with that process in terms of ship safety, survivability and reliability.

workshops / ships / Beaufort Sea / ice, sea / safety measures / technology / ice islands / ice-breaking vessels / Canmar

D 140 "Operators Probe for Least Cost Production."
Leonard A. LeBlanc.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 49-57.

622.182 82 Har 1985

This article examines the high cost of exploratory drilling for oil and gas, in arctic and other harsh environments, which increases proportionally with depth, ice movement and distance from supply bases. The cost of development, production and transportation, and the difficulty of competing with production from traditional producing areas, is addressed. The environmental conditions, which dictate the method selected for exploration and production purposes, are examined and the technology developed to cope with the problems facing operators in hostile environments is discussed and illustrated. The theme of the article is the need for less expensive and more advanced recovery technology.

exploration / drilling, offshore / arctic conditions / ice, sea / financing / socio-economic aspects / technology / hydrocarbon production

D 141 "Permafrost casing instrumentation."
S. Roger Saint.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. n.p.

622.182 82 CODD 1983

The presence of significant permafrost zones in the Arctic presents unique problems in the development of hydrocarbon resources in the area. Heat dissipated into permafrost zones by drilling and production operations will result in permafrost thaw subsidence which could potentially damage the safety integrity of the surface casings. This paper describes the design, testing, installation and operation of an electronic casing instrumentation system to monitor this potential problem. The system was installed in 1981 on the Gulf/Dome Tarsiut artificial island and currently provides downhole casing data.

permafrost / Arctic / exploration / drilling / operations / thawing / technology / Gulf / Dome / Tarsiut / conferences

D 142 "Physical Modelling of Operations in Marginal Ice Zones."
George Comfort.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986. various pag.

665.502 8 Arc 1986

With the exploration of the world's offshore regions, there is increased interest in operating in a number of ice environments, including marginal ice zones. A wide range of ice cover conditions may be found in these areas including icebergs and large pans of relatively thin ice. This paper describes the design and role of models for laboratory use in the development of design criteria, performance analysis and development and/or simulation of operations in ice.

conferences / technology / ice, sea / icebergs / operations / ice management

D 143 PIPELINE DESIGN FOR DISCONTINUOUS PERMAFROST. PRESENTATION TO THE NORTHERN PIPELINE AGENCY.
Foothills Pipe Lines (Yukon) Ltd.
s.l. : Foothills Pipe Lines (Yukon) Ltd., 1982. various pag.

665.744 FPL(Y)

The term discontinuous permafrost refers to a situation where all of the terrain in an area is not in a perennially frozen state. This presentation by Foothills Pipe Lines (Yukon) Ltd. (FPL(Y)), to the Northern Pipeline Agency, discusses the various design measures developed to mitigate the unique problems encountered when operating a warm or cold pipeline in discontinuous permafrost. Paper copies of a slide presentation are included, together with the accompanying text.

permafrost / FPL(Y) / pipeline design / pipeline construction / Northern Pipeline Agency / technology

D 144 "The Potential for Combining Structural Steel and Concrete in Arctic Structures."
W.J. Maddock and J.C. Bruce.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY, 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. 01-09.

623.812 4 Int 1984

Development of exploration platforms for the Arctic provides challenging problems in the design of offshore structures. This paper examines alternatives for combining steel and concrete in an Arctic structure and concentrates specifically on the merits of the use of composite steel/concrete ice walls. Diagrams are included and there is a list of references.

conferences / technology / Arctic / ice, sea / steel structures / concrete / exploration / drilling, offshore

D 145 "Prediction of Structural Damage, Penetration and Cargo Spillage Due to Ship Collisions with Icebergs."
D.S. Aldwinckle and K.J. Lewis.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. D1-D14.

623.812 4 Int 1984

This paper describes the development of a model to estimate damage extent and pollution consequences resulting from high energy ship collisions with icebergs. A brief review is made of iceberg sizes and reference is made to plans for the transportation of oil, gas and mineral resources from the Arctic. Also reviewed are some statistics on damage to ice-classed ships obtained from Lloyd's Register's data. Graphs and diagrams are included and a list of references is provided in this very technical presentation.

conferences / transportation, marine / pollution / pollution, oil / icebergs / ships / tankers / LNG / technology / statistics / Arctic

D 146 A PRIMER OF PIPELINE CONSTRUCTION, 2ND EDITION.
University of Texas, Petroleum Extension Service and Pipe Line Contractors Association in cooperation with Texas Education Agency.
Austin, Texas : University of Texas at Austin, Petroleum Extension Service, 1966. 69 pp.

621.867 2 Uni

As well as detailing the process involved in constructing a pipeline, this book describes the materials, methods and equipment which have been developed to keep pace with growing pipeline requirements. Cross country pipelines, swamp and coastal construction and offshore pipeline laying are all addressed in this publication. Black and white photographs are used extensively to illustrate methods, techniques and major equipment items employed in pipeline construction.

pipeline construction / pipeline materials / pipeline routes / pipelines / pipelines, offshore

D 147 "Protection of Arctic Submarine Pipelines Against Ice Scour."
M.A. Nessim and I.J. Jordan.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. I].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 610-617.

620.411 3 Off

The authors of this technical paper discuss a theoretic approach to the problem of protecting submarine pipelines against ice scour. They present a model which considers twinning, deep trenching and valve segmentation. Two sources of uncertainty are considered, namely the rate and the depth of scour. Consequences of pipeline damage are discussed in terms of impact on the economy and environmental safety.

conferences / ice scour / pipelines / pipeline hazards / pipelines, offshore / pipeline design / technology / ice / oil spill countermeasures / environmental impact / socio-economic aspects / oil spills

D 148 "Radar Remote Sensing for Arctic Operations."
D.R. Inkster.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This paper describes the current state-of-the-art in operational ice management, together with examples of ice management programs being carried out in Arctic waters, particularly Canmar's Beaufort Sea program in support of both Canmar and Beaudril's drilling operations. These programs illustrate some applications of computer and remote sensing technologies relative to safety standards and efficient management of offshore drilling operations.

workshops / ice management / radar systems / environmental monitoring / drilling, offshore / Canmar / BeauDril / Beaufort Sea / technology / ships / safety measures / ice, sea / communications

D 149 RADIO COMMUNICATIONS USED FOR OFFSHORE EXPLORATIONS IN A CANADIAN MARITIME REGION.
L.E. Petrie and U.I. Campbell.
Ottawa, Ontario : Eastcoast Petroleum Operators' Association, 1983.
1 microfiche.

MF EPOA 9-1

The authors of this report investigated several high frequency radio systems operated by companies engaged in off-shore petroleum exploration activities along the east coast of Canada. The report presents the following data: the principal radio communications requirements, which were defined after discussions with the industry's communications planners and users; observations on the maintenance and operation of the present radio systems; and the predicted performance of these radio systems. Recommendations for improvements on the present systems and several possible alternatives are discussed. Maps, charts and photographs are included as is a short list of references.

communications / exploration / drilling, offshore / drillships / oil rigs / ships / Atlantic Ocean / communications, radio / EPOA

D 150 REDUCING THE UNCERTAINTIES ABOUT PRODUCING OIL AND GAS IN THE ALASKAN ARCTIC.
Morgantown Energy Technology Center.
U.S. Department of Energy: Morgantown Energy Technology Center. Topical Report. Arctic and Offshore Research Subprogram.
Morgantown, West Virginia : U.S. Department of Energy: Morgantown Energy Technology Center, 1983. 33 pp.

622.182 82 METC

This overview report of the U.S. government's Arctic and Offshore Research Subprogram describes arctic and offshore technologies and the government's role in developing technology. Project plans designed to advance the arctic technology base and accelerate the development, production and transportation of Alaskan oil and gas resources, are discussed. The arctic environment is described and research needs in the area of technology are identified.

technology / northern energy development / Alaska / Arctic / ice / ice islands / seismicity / waves / ice scour / permafrost / artificial islands / drilling, offshore / tankers / marine terminals / government

D 151 "A Reinforced Underwater Ice Berm."
B. Michel.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. II].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 281-285.

620.411 3 Off

This paper presents an economical and resistant way to build a base of fill material for the artificial islands and caissons that are used for offshore structures in the Arctic. The authors describe a method for producing built-up and reinforced sea ice plates that are assembled to form a solid and strong base to replace the fill material of underwater berms. Illustrations show examples of the use of the ice berm for both movable and permanent structures.

conferences / artificial islands / caisson retained islands / ice / ice, sea / technology / engineering / construction

D 152 "Remote Controlling Production for Offshore."
L. Russel Records and Carl J. Sonnier.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 69-71.

622.182 82 Har 1985

In this short technical paper, the authors discuss the use of sophisticated new computer technology for use on unstaffed or minimally staffed offshore drilling platforms. This paper focuses on the basic elements and some of the advantages of the use of advanced control and data acquisition systems for production operations in harsh environments.

drilling, offshore / technology / operations / communications

D 153 REMOTE SENSING OF OIL SPILLS.
K.P.B. Thomson, S.L. Ross and H. Howard-Lock.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EE-74-2.
Ottawa, Ontario : Canada. Environmental Protection Service, 1974.
22 pp.

628.168 33 Tho

This paper discusses the state-of-the-art in remote detection of oil spills, specifically in terms of Canadian experience and needs. The advantages and disadvantages of basic types of sensor packages are discussed. Where applicable, examples of recent results achieved by present technology are mentioned. The final section of this report contains conclusions and recommendations, and a bibliography is included.

oil spills / oil spill countermeasures / remote sensing / oil detection systems / technology / pollution, oil

D 154 "Repair Welding of Arctic Offshore Structures and Vessels."
H.B. Luft, R. Witzke and I. Smugo-Otto.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986.
pp. 520-535.

620.411 3 Col 1986

This paper describes a welding procedure developed for repair or field modifications to offshore drilling structures and vessels. The welding is assumed to occur at minus 30°C ambient temperature on steel with improved strength and corrosion resistance. Laboratory tests of the procedure are described and comparisons are drawn between the laboratory results and welding field tests conducted on one of Canmar's Arctic class vessels.

welding / technology / steel structures / corrosion / oil rigs / drillships / Arctic / Canmar / conferences

D 155 REVIEW OF ICE MOVEMENT BUOYS FOR TRACKING OIL SPILLS.
R.H. Goodman.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EC-78-7.
Edmonton, Alberta : Canada. Environmental Protection Service, 1978.
38 pp.

628.168 33 Goo

In the event of an oil spill in Arctic waters, oil may be trapped under ice for a period of time and the tracking of the oil during this time may be accomplished by following the movements of the ice under which the oil is located. This report reviews various techniques by which ice movements may be remotely monitored or determined. The techniques are divided into two regimes: "macro" systems for tracking ice over great distances and "micro" systems using short-range homing systems for the accurate location of specific sites. On the basis of this review, recommendations are made on the configurations of equipment for each system. This report is illustrated and a short bibliography is included.

oil spills / pollution, oil / oil spill research / technology / ice, sea / remote sensing / oil detection systems / oil spill countermeasures / radar systems / electrical transmission systems / environmental protection

D 156 A REVIEW OF OIL SLICK COMBUSTION PROMOTERS.
Energetex Engineering.
edited by J. de Gonzague and J. Moore.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EC-79-8.
Ottawa, Ontario : Canada. Environmental Protection Service, 1979.
59 pp.

628.168 33 Ene

This report describes the use and effectiveness of combustion promoters as applied to in situ burning of oil slicks. The materials described are classified into four groups in accordance with their effects upon the oil layer. Some of the materials originally classified as sorbents have been listed here as combustion promoters; each of these can be air-dropped on to oil slicks if necessary. It is reported that present data are insufficient for thorough conclusions to be drawn and it is recommended that further controlled tests, as well as tests on additional materials, be performed. A list of references cited in the report and a short bibliography are provided.

in situ burning / oil spills / oil spill countermeasures / technology / oil spill research / sorbents / pollution, oil / burning agents / aerial delivery / environmental protection

D 157 "A Review of the Relationship Between the Characteristics of Spilled Oil and Dispersant Effectiveness."
G.P. Canevari.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 87-93.

628.168 33 ASTM

The effectiveness of a particular chemical dispersant is usually determined by various laboratory tests. Such laboratory performance cannot always be replicated in the field. The physical and chemical aspects of the spilled oil influence dispersant performance. Some of the important parameters discussed in this paper are the geometry, viscosity and lens effect of the oil slick and the type of crude oil. The composition of the crude oil, and its emulsion-forming tendency, influence dispersant effectiveness regardless of other physical properties and that influence is extensively discussed in this paper.

oil spills / oil spill countermeasures / pollution, oil / dispersants / crude oil properties / technology / conferences

D 158 "Safety Versus Economy in Engineering Design."
I.J. Jordaan and M.A. Nessim.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

The authors of this paper discuss the "trade-off" between safety and economy in engineering design practices relative to offshore exploration and drilling structures. Trends in accidents in offshore engineering are summarized. The role of design methods in reducing risk, and the influence of new technology, are discussed. Particular emphasis is given to the safety of structures in frontier areas such as the Arctic. Various ways of assessing the value of human life are summarized and assessments, carried out on large accidents, are reviewed and commented upon.

workshops / engineering / technology / safety measures / oil rigs / explosions / Arctic / fire / blowouts / storms / ships / icebergs / financing / risk analysis

D 159 SCOUR AROUND SEAFLOOR STRUCTURES.
Keith Philpott Consulting Ltd.
Environmental Studies Revolving Funds Report No. 017.
Ottawa, Ontario : Keith Philpott Consulting Ltd., 1986. various pag.

627.98 Kei

This Environmental Studies Revolving Funds (ESRF) Study outlines and assesses the general state of knowledge and experience of scour around seafloor structures. (For the purposes of this study, scour is defined as erosion caused by modification of water movement due to the presence of a natural obstacle or man-made structure.) A literature search was conducted and a list of selected references is included. As well, the study identifies successful structure design procedures, and outlines design guidelines, data requirements and procedures for selecting effective scour prevention measures.

ESRF / scour / erosion / bibliographies & indices / technology / currents / waves / pipelines / caisson retained islands / seaweed

D 160 SEABED RECONNAISSANCE AND OFFSHORE SOIL MECHANICS FOR THE INSTALLATION OF PETROLEUM STRUCTURES.
Pierre Le Tirant.
Institute Francais du Petrole Publications.
Paris, France : Editions Technip, 1979. 508 pp.

624.157 LeT

First published in French in 1976, this book has been translated into English and updated to include recent developments in offshore technology. The author examines the elementary definitions and concepts of soil mechanics and looks at aspects of seismic exploration. The principles, description, implementation, performance and application limits of soil reconnaissance techniques are given. Examples of geotechnical problems involved in the offshore installation of structures used for petroleum exploration and production are provided. Diagrams and charts are used throughout and each chapter contains a bibliography.

technology / drilling, offshore / geotechnology / oil rigs / bathymetry / morphology / seismic exploration / soils / steel structures / pipeline construction / engineering / sedimentation

D 161 "Seabed Strengthening."
Sherman B. Wetmore and Max Halebsky.
In SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984. 29 pp.

627.98 Arc 1984

Strengthening the soft soil areas of the Beaufort Sea would increase the versatility and usefulness of bottom-mounted structures, such as mobile offshore drilling units. This paper discusses the method of seabed strengthening by cement injection in arctic soil conditions.

conferences / Beaufort Sea / cement / technology / drilling, offshore / arctic mobile drilling structure

D 162 SEAFLOOR SCOUR: DESIGN GUIDELINES FOR OCEAN-FOUNDED STRUCTURES.
John B. Herbich.
Ocean Engineering 4.
New York, New York : Marcel Dekker Inc., 1984. 320 pp.

627.042 Her

Seafloor scour is identified here as one of the primary issues faced by engineers designing offshore structures. This book provides designers with specific procedures to locate, size, construct, and install both offshore structures and pipeline systems in several different soil and wave/current conditions throughout the world's seafloors. As well, specific methods to mitigate scour around offshore structures are discussed. Photographs and graphs are used throughout. Each chapter includes a list of references cited and the book is indexed.

tidal scour / oil rigs / pipelines, offshore / engineering / technology / steel structures / waves / tidal currents / sedimentation / seas

D 163 SECOND ARCTIC OFFSHORE SYMPOSIUM [TECHNICAL BRIEFS], HOUSTON, TEXAS, APRIL 11, 1984.
Newport Beach, California : Global Marine Development Inc., 1984.
various pag.

627.98 Arc 1984

This volume contains the texts of technical papers which present current technology used in the design and construction of arctic offshore structures. Each of the eight papers is illustrated and includes a list of references.

conferences / drilling, offshore / technology / CIDS / arctic mobile drilling structure / Arctic / ice, sea

D 164 "Self-Propelled Pipeline Trencher for Offshore Arctic Applications."
Daniel K. Carstens and Edward J. Thompson.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
9 pp.

665.502 8 Arc 1986

This technical paper discusses the current development of a self-propelled pipeline and cable trencher that has significant operational advantages for use in the Arctic. The trencher utilizes water jets to cut a trench and also uses high pressure water for spoil removal and propulsion; it is suitable for trenching between an offshore platform up to and including the shore crossing. Diagrams and copies of photographs are included.

conferences / pipelines, offshore / pipeline construction / Arctic / technology

D 165 "Shallow Geophysical Borehole Logging in Permafrost: A Case History."
R. Miller.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 51-52.

551.384 Wor

The construction of the TransAlaska Pipeline System (TAPS) involved the placement of approximately 77,000 vertical support members for the elevated portion of the hot oil pipeline. While the average length of each was calculated to be 30 feet, the actual length was to be dependent on the dry density of the permafrost soils. This technical paper documents the development of a geophysical tool capable of rapid determination of dry density for use by field engineers conducting sample logging of all the holes drilled.

workshops / TAPS / pipelines / permafrost / pipeline construction / geophysics / well logs / technology

D 166 "Ship-Ice Floe Collision Analysis Considering the Elastic Deflection of Hull Girder."
Masakatsu Matsuishi.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY, 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. E1-E13.

623.812 4 Int 1984

With the discovery of oil and gas resources in the Arctic, one of the important aspects of developing these resources is the development of Arctic oil tankers and LNG carriers capable of year-round operation. The authors of this technical paper describe a method of collision analysis for accurate evaluation of ice force impact. In the analysis, the elastic bending and shearing deflections of the hull girder are taken into account as well as the rigid body movement of the ship.

conferences / Arctic / transportation, marine / technology / tankers / LNG / ice, sea / ice-breaking vessels / engineering

D 167 "Shock Waves Show Ice-Breaking Promise."
Richard H. Wesley and William R. Stowell.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 112-115.

622.182 82 Har 1985

The main problem encountered in offshore operations is ice. This paper describes technology which utilizes the characteristics of the shock wave to fracture ice. The method involves an extremely intense shock wave developed by means of an electrical discharge, similar in nature to a lightning bolt. Conceptual sketches depict how pack ice can be fractured using this method to allow passage of marine vessels, and how an offshore structure, fixed or mobile, can be protected by fracturing approaching ice to the point that the remaining fragments will cause no damage if contact is made.

ice / ice, sea / technology / ice-breaking vessels / electricity / shock waves / transportation, marine

D 168 "Some Aspects of Interpreting Seismic Data for Information on Shallow Subsea Permafrost."
K.G. Neave and P.V. Sellmann.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekatra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 61-65.

551.384 Wor

The authors of this paper identify three problems associated with finding the extent of warmer subsea permafrost using oil industry seismic records: 1) the boundary between warmer and colder permafrost is not sharp and there are strong contrasts in seismic velocity; 2) shallow gas shifts the velocity ranges for both thawed and bonded sediments; and 3) the signal-to-noise ratios are poor on the records, partly because of reduction in intensity of the signal due to the shallow gas. Methods of overcoming these problems are discussed in this illustrated paper. A list of references is provided.

workshops / permafrost / seismic exploration / seismic velocity / geophysics

D 169 "Some Aspects of the Naval Architecture of Arctic Structures and Vessels."
Peter S. Hatfield.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This presentation briefly outlines the provision of naval architectural services for Arctic structures and vessels, based upon the author's professional experience. Some special design considerations for large structures are reviewed, along with time constraints, pricing considerations, designs for shallow water, and shipyard experiences. A set of prints, from a slide presentation which accompanies this paper, is included.

workshops / architecture, naval / Arctic / ships / oil rigs / steel structures / financing / tankers

D 170 "Some Aspects of Transient Electromagnetic Soundings for Permafrost Delineation."
G. Rozenborg et al.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army. Cold Regions Research and Engineering Laboratory, 1985. pp. 74-90.

551.384 Wor

A variety of geophysical methods have been applied to map the top and bottom of permafrost. This technical paper illustrates the use of one of these methods - transient electromagnetic sounding - which has been successfully employed to delineate upper and lower permafrost surfaces in a number of areas in the Arctic. Four case studies are presented, of which three are taken from surveys in the western Canadian Arctic and the fourth from the Alaskan North Slope. Numerous diagrams are included and a list of references is provided.

workshops / geophysics / permafrost / mapping / Arctic / North Slope, Alaska / transient electromagnetic sounding

D 171 "Some Characteristics of Welds in Steels Used in Arctic Offshore Structures and Ships."
Peter Blakesley.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

The authors of this paper review previously reported data relative to conventional steel plate and corrosion susceptibility peculiar to Arctic waters. As well, they report their own preliminary findings from controlled tests of weldments made at sub-zero temperatures in special micro-alloyed low carbon on-line accelerated cooled plate. The significance of electrode chemistry and heat input is considered, as are fracture mechanics, and the degree of tolerable knifeline corrosion. The author discusses the manner in which findings and experiments might influence techniques of weld repairs in sub-zero conditions, on existing structures, in the Arctic regions. A bibliography completes this paper.

workshops / arctic conditions / corrosion / welding / drilling, offshore / technology / steel structures / oil rigs / ships

D 172 "Some Latest Developments in Icebreaker Technology."
J. Schwarz.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. II].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 321-329.

620.411 3 Off

Ice-breaking technology has been improved over the last ten to 15 years so that the installed power of ice-breaking ships could be drastically reduced. In this paper, the improvement is demonstrated by reference to four examples of ice-breaking vessels. It is suggested that the ice-breaking capability of ships be evaluated through model tests, theoretical approach and by full scale measurements. In concluding, the author offers some thoughts on features of an advanced ice-breaker.

conferences / ice-breaking vessels / technology / ships / transportation / ice, sea / arctic conditions

D 173 SOME NOTES ON THE RELIABILITY AND OPERATIONAL SIMULATION OF ARCTIC SHIPS. OUTLINE PROPOSAL TO BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL.
Lloyd's Register of Shipping.
London, England : Lloyd's Register of Shipping, 1983. various pag.

623.824 5 Llo

This brief publication explains that the assessment of risk basically involves discovering what failure events are likely to occur, and how often, and the likely damage which will result from these failures. Presented to the Beaufort Sea Environmental Assessment Panel (BSEAP), the information includes a computer simulation program for chemical tankers and a statistical analysis of computer model results. Much of the content is produced in tabular format.

risk analysis / Arctic / tankers / technology / BSEAP / shipping

D 174 "Sonat Hybrid Arctic Drilling Structure - SHADS.
R.E. Steddum et al.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

In this paper, Sonat Offshore Drilling introduces its recently completed design for a mobile arctic drilling structure. The Sonat Hybrid Arctic Drilling Structure (SHADS) features steel and concrete construction - an all steel base mated to a steel and concrete midsection, topped by an all steel deck. The structure is especially suited for offshore drilling in heavy ice loads and other adverse conditions often found in the Beaufort Sea. The authors describe the design, construction and operation of SHADS and provide a number of diagrams and tables for illustrative purposes.

workshops / drilling, offshore / Beaufort Sea / technology / steel structures / ice management / oil rigs / arctic mobile drilling structure / SHADS

D 175 "The SSDC/MAT - Construction and Delivery."
Art Wichert and Mark Helmer.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
27 pp.

665.502 8 Arc

This paper documents the manufacturing and assembly of the MAT base and its subsequent joining with Canmar's SSDC (single steel drilling caisson) in the Alaskan Beaufort Sea. (The combination of the MAT and the SSDC creates a mobile offshore drilling unit which will allow year round drilling in the Beaufort Sea in water depths of 7.6 to 24.4 metres without the expense of bottom preparation.) MAT construction, and the SSDC modifications required to permit the mating of the two parts, are overviewed in this technical paper which contains diagrams, charts and photographs.

conferences / Canmar / caissons / arctic mobile drilling structure / technology / construction / drilling, offshore / Beaufort Sea

D 176 "Stability Monitoring Programs in Hazardous Ice Conditions."
W.E. Berzins et al.
In FOURTH INTERNATIONAL OFFSHORE MECHANICS AND ARCTIC ENGINEERING SYMPOSIUM: PROCEEDINGS, DALLAS, TEXAS, FEBRUARY 17-21, 1985. [Vol. II].
edited by Jin S. Chung et al.
New York, New York : American Society of Mechanical Engineers, 1985. pp. 120-127.

620.411 3 Off

The operational requirements for a stability monitoring system, on a drilling caisson in hazardous ice conditions, are presented in this paper. System design and implementation are discussed and general artificial island design criteria are provided as a basis for instrumentation design.

conferences / artificial islands / caisson retained islands / technology / ice, sea / ice floes / engineering / geotechnology

D 177 STATE OF THE ART REVIEW OF PETROLEUM PRODUCT SPILL CONTAINMENT DYKES IN THE NORTH.
Imperial Oil Limited.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-EE-74-1.
s.l. : Canada. Environmental Protection Service, 1974. 47 pp.

628.168 33 Imp

The design, construction and maintenance of spill containment dykes in the Arctic are reviewed in this report. The review is based on a brief survey of the techniques and practices used by petroleum production, mining and transportation companies, as well as government agencies, operating in northern Canada. It is concluded that there is a need for discussion between industry and the regulatory agencies in order to arrive at minimum acceptable standards. Some areas requiring further research and development work are identified.

oil spill countermeasures / government / regulatory agencies / regulations / technology / storage / Arctic / dykes

D 178 "The Status of the Warren Spring Laboratory's Rolling Flask Test."
F.N. Martinelli.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 55-68.

628.168 33 ASTM

This paper discusses the use of dispersants in the United Kingdom. The research undertaken to improve the laboratory test for the assessment of oil spill dispersant efficiency is described together with some of the supporting on-going work in the field of dispersant evaluation. An efficiency test for oil spill dispersants is reproduced in an appendix and the procedures involved are listed therein.

pollution, oil / dispersants / oil spill countermeasures / Great Britain / conferences

D 179 "Strengthening Alaskan Beaufort Sea Soils With Portland Cement."
Bernard Nidowicz and Donald E. Bruggers.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986.
pp. 771-783.

620.411 3 Col 1986

Low strength soils are present in the Alaskan Beaufort Sea and this fact has an impact on the use for hydrocarbon exploration and production purposes of gravity structures, such as drilling caissons, since they require strong foundation capacities. This paper presents the results of two laboratory programs performed to evaluate the feasibility of strengthening soils using cement. A list of references is included and tables and charts supplement the text.

caissons / drilling, offshore / engineering / technology / Beaufort Sea, Alaskan / cement / conferences

D 180 SUB-ARCTIC DEEP WATER PETROLEUM TECHNOLOGY ASSESSMENT.
Brown & Root Development, Inc.
U.S. Minerals Management Service. Technical Report No. 109.
Springfield, Virginia : National Technical Information Service, 1984.
various pag.

622.182 82 Bro

The principal purpose of this study is to identify the petroleum technology that may be used to develop offshore oil resources in the deepwater sub-arctic areas in and around the Gulf of Alaska. This study focuses on the development of components to be utilized, including methods of exploration, production and transportation. A technical and economic assessment of these components, in conjunction with the relevant environmental and operational parameters, defines the feasible strategies that might be employed. In effect, this study provides a technology assessment with associated component costs and schedules for water depths beyond 200 metres.

Gulf of Alaska / technology / hydrocarbon production / exploration / transportation / environmental protection / financing / drilling, offshore / pipelines / oil rigs / safety measures

D 181 "Superbeacon Syledis: An Experience with Large Integrated Positioning Drilling Systems in the Canadian Beaufort Sea."
J.M. Green.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

The author of this fairly technical paper explains that offshore drilling and construction programs in Arctic regions demand accurate positioning and navigation services. This paper discusses the background of range enhancement techniques, shore station link design and other facets of electronic navigation systems, both in use and under experimentation, for serving offshore drilling and survey operations. Particular reference is made to Syledis, a system introduced to the Canadian Arctic hydrocarbon industry in 1979 to provide longer range performance.

workshops / navigation / technology / communications / Arctic / communications, radio / electronic navigation systems / syledis system

D 182 SUPPLEMENT TO "MODEL TESTS OF THE IMPERIAL MONOPOD DRILLING UNIT".
Earl and Wright, Consulting Engineers.
Offshore Technology Report No. OTC-73-40.
Calgary, Alberta : Arctic Petroleum Operators' Association, 1973.
1 microfiche.

MF APOA 110-10

This short, very technical report, summarizes motions and accelerations tests, and lowering and raising tests, conducted on Imperial Oil's monopod drilling unit. During the tests, motions and accelerations were measured in a series of regular and irregular wave heights and durations. The second series of tests involved lowering a model of the drilling unit, through ballasting, and raising it by deballasting the tanks from the bow to the stern. The technical information is supported by illustrative charts.

drillships / drilling, offshore / Imperial Oil / waves / wind / technology / APOA

D 183 "System Development for Measurement of Full Scale Ship Ice Impact Forces."
G.A.M. Ghoneim, M.H. Edgecombe and J. Grinstead.
In ICE TECH '84. THIRD INTERNATIONAL CONFERENCE ON ICE-BREAKING AND RELATED TECHNOLOGIES [PROCEEDINGS], CALGARY, MAY 1984.
s.l. : Society of Naval Architects and Marine Engineers, 1984.
pp. K1-K15.

623.812 4 Int 1984

This paper presents a new system developed by Canadian Marine Drilling Limited (Canmar), a subsidiary of Dome Petroleum Limited, to estimate the global ice forces and measure the corresponding structural response of ice-breaking vessels during ramming operations, in heavy first year and multi-year ice, in the Beaufort Sea. The system was tested on two of Canmar's ice-breakers - the Kigoriak and the Robert Lemeur - and the results indicate that the system is good for these ships; as well, the authors suggest that the system can be applied to other vessels providing the stiffness of bow structure is adequate.

conferences / Canmar / Dome / ice, sea / ice-breaking vessels / technology / Beaufort Sea / Kigoriak / Robert Lemeur

D 184 "Tanker Mooring, Storage for Sub-Arctic Waters."
K.I. Pederson, R.D. King and G.J. Post.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 79-83.

622.182 82 Har 1985

The expansion of hydrocarbon exploration in sub-Arctic waters has created a need for tanker mooring facilities for floating storage vessels and tanker loading. This paper summarizes a study to develop suitable concepts and preliminary designs for such tanker mooring facilities, taking into account wind, waves and ice conditions. The study limits itself to areas where the risk of iceberg collision may be ignored, but where ice conditions generally occur four to six months during each year with ice coverage ranging up to 100% during this period. Diagrams supplement the text of this technical paper.

Arctic / arctic conditions / tankers / storage / technology / wind / waves / ice / ice, sea / ice-breaking vessels

D 185 "Technical Evolution of Drillsite Survey Techniques Used by Dome Petroleum in the Beaufort Sea from 1977-1980."
Nam Pui.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
s.l. : s.n., 1981. n.p.

622.182 82 CODD 1983

This article briefly discusses the need for, and the methodology of, drillsite survey, the general site survey program and the output of each component of the program. It presents an overview of high resolution shallow seismic and deep geotechnical coring to show their contribution to the drilling of an offshore well. The objective of site survey is to prevent loss of well, equipment, and life that could be caused by shallow drilling hazards such as shallow gas, shallow fault, unstable seafloor or problems associated with permafrost and gas hydrates.

Beaufort Sea / drilling, offshore / geotechnology / safety measures / seismic exploration / exploration / surveys / permafrost / engineering / core testing / conferences

D 186 "Technology Update - Artificial Islands in the Beaufort Sea."
D. Garratt.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 25-38.

333.823 05 Arc 1978

The focus of this paper is the use of artificial islands as drilling platforms within Imperial Oil's acreage in the Mackenzie Delta/Beaufort Sea area. The physical environmental conditions to which the islands are exposed are briefly outlined and design, construction and operational constraints are all discussed. A photograph of an Imperial Oil artificial island is included as well as two diagrams showing details of artificial island design features.

artificial islands / Beaufort Sea / Mackenzie Delta, N.W.T. / Imperial Oil / ice, sea / drilling, offshore / storms / northern energy development / engineering / technology / workshops / APOA / CPA

D 187 "Testing of Admixtures for Seabed Strengthening."
Arshud Mahmood, Kelly S. Merrill and Khoi M. Le.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986.
pp. 252-263.

620.411 3 Col 1986

Gravity structures, for offshore oil exploration and production in the Beaufort Sea, derive resistance to large lateral ice loads through interaction with sea floor soils. As certain areas of the Beaufort Sea are underlain by relatively weak cohesive soils, it may be necessary to conduct soil improvement work. This paper discusses and evaluates one method of soil improvement - in situ cement mixing - based on laboratory tests carried out on sample soil borings from the Beaufort Sea. Graphs are provided and there is a list of references.

drilling, offshore / Beaufort Sea / sediments / concrete / geotechnology

D 188 "Thermal Design Aspects of a Mobile Arctic Drilling Platform."
D.W. Richardson et al.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

This paper discusses the design of large, mobile drilling platforms, for use in Arctic waters, during the winter season. This is a very technical presentation which includes descriptions, in some detail, of various special design parameters and measures taken to ensure that all systems will function normally under the most adverse climatic conditions.

workshops / technology / oil rigs / drilling, offshore / ice management / wind / waves / steel structures / Arctic / safety measures / climatology

D 189 "Topside Engineering for Harsh Environments."
Leroy M. Williams and John R. Lancaster.
In HARSH ENVIRONMENT AND DEEPWATER HANDBOOK.
edited by Robert G. Burke.
Houston, Texas : Pennwell Publishing Company. Energy Group, 1985.
pp. 73-77.

622.182 82 Har 1985

The authors of this paper argue that design of oil rigs, for harsh environments, is not so much a technical consideration as it is a systems approach to the most effective use of existing technology. The design of topside facilities in harsh environments is influenced in numerous aspects by operational considerations - operating seclusion for an extended period of time, replacement equipment, safety, structural fatigue due to excessive forces, and super large or very small modular facilities. The authors discuss engineering and design of topside facilities, which essentially function to produce oil, process associated gas, dispose of produced water and transport the produce.

oil rigs / technology / safety measures / engineering / operations

D 190 "The Transport of Crude Oil Under Saline Ice."
James K. Puskas and Edward A. McBean.
In COLD REGIONS ENGINEERING. PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE, ANCHORAGE, ALASKA, FEBRUARY 24-26, 1986.
edited by William L. Ryan.
New York, New York : American Society of Civil Engineers, 1986.
pp. 670-684.

620.411 3 Col 1986

This paper examines a mathematical model developed to describe the forces acting on an oil slick under saline ice in the presence of a water current. The authors describe laboratory experiments conducted to verify the integrity of the model and the results of the experiments are discussed here. As well, the results are compared to similar experiments conducted under freshwater ice. The paper is illustrated and a short list of references is provided.

oil spills / pollution, oil / ice, sea / salinity / technology / currents

D 191 UNDERICE RADIATED NOISE MEASUREMENTS OF THE ICEBREAKER 'CCGS JOHN A. MACDONALD' IN BAFFIN BAY AND LANCASTER SOUND, JUNE 1983.
Greeneridge Sciences, Inc.
Santa Barbara, California : Greeneridge Sciences, Inc., 1984. 31 pp.

363.741 Gre

This study, funded by the Northern Oil and Gas Action Program (NOGAP), was prepared for the Department of Indian Affairs and Northern Development (DIAND). A research project, conducted in Baffin Bay and Lancaster Sound, to measure ship noise during ice-breaking is described and the results discussed. The data provided are technical in nature emphasizing the procedures and equipment used in the research. As well, graphs to illustrate sound pressure spectra for various ranges, speeds and ice conditions are provided. The basis for this study is the increased interest in year-round marine transportation in the Arctic and environmental concerns in terms of the effects on marine life of noise made by ships breaking ice.

NOGAP / DIAND / ice-breaking / ice-breaking vessels / pollution, noise / ice, sea / Baffin Bay / Lancaster Sound, N.W.T.

D 192 UNDERSTANDING COST GROWTH AND PERFORMANCE SHORTFALLS IN PIONEER PROCESS PLANTS.
Edward W. Merrow et al.
Rand's Pioneer Plants Study No. 2.
Santa Monica, California : The Rand Corporation, 1981. 93 pp.

660.280 681 Mer

Prepared for the U.S. Department of Energy, this study seeks a better understanding of the reasons for inaccurate estimates of capital costs, and performance difficulties, for first-of-a-kind process plants. The emphasis is on energy process plants and the study is aimed at providing government and industry with tools to improve assessment of the commercial prospects of developing technologies.

operating costs / processing costs / energy costs / technology / process plant

D 193 "Underwater Support Capabilities - Arctic Marine Operations."
Jim English.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984.
various pag.

665.502 8 Arc 1984

The provision of underwater support capabilities, to provide inspection, maintenance and repair services to offshore vessels and installations, is discussed in this address. Various functions performed during both regular maintenance checks, and more emergent repair situations, are described. Specific structures and vessels reported on by the author include the Kulluk System, caisson retained islands, ice-breakers, drillships, and pipelines.

workshops / Kulluk / caisson retained islands / ice-breaking vessels / drillships / pipelines / technology / under-water repairs

D 194 "Uniform Methods for Exposure Regimes in Aquatic Toxicology Experiments with Chemically Dispersed Oils."
P.G. Wells, J.W. Anderson and D. Mackay.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 23-37.

628.168 33 ASTM

This paper summarizes current methods of research in preparing and analyzing test solutions and dispersions of hydrocarbons, dispersants, and combinations of the two. Specific items discussed include choice of oils and dispersants, choice of oil/dispersant ratios and chemical analysis of dispersed hydrocarbons. The authors recommend the adoption of principles and methods for water and sediment studies. A detailed list of references is included.

pollution, oil / dispersants / toxicology / water quality / oil spill countermeasures / conferences

D 195 "Unique Disposal Techniques for Arctic Oil Spill Response."
James J. Swiss et al.
In OIL SPILL CONFERENCE; PREVENTION, BEHAVIOR, CONTROL, CLEANUP: PROCEEDINGS. LOS ANGELES, CA., FEBRUARY 25-28, 1985.
American Petroleum Institute, U.S. Environmental Protection Agency and U.S. Coast Guard.
Washington, Dist. of Columbia : American Petroleum Institute, 1985. pp. 395-398.

628.168 33 Osc

Disposing of oil and oiled debris from Arctic oil spills presents problems not encountered in temperate regions. The remoteness of the sites, the wide range of environmental conditions, the lack of support facilities (like roads and dump sites) and the presence of permafrost make many standard disposal techniques unsuitable. This paper describes methods of disposal developed by Dome Petroleum Limited which now form part of Dome's oil spill response plans in the Beaufort Sea. These methods include air-deployable igniters to burn pooled oil, a helicopter transferable incinerator for burning oil contaminated debris, and a fireproof boom for offshore open water use. This paper includes photographs, a map and a short list of references.

conferences / oil spill countermeasures / oil spills / pollution, oil / Dome / Beaufort Sea / in situ burning / aerial delivery / fireproof booms / Arctic / environmental impact

D 196 "The Use of Concrete Honeycomb for Arctic Structures."
Sherman B. Wetmore.
In CONFERENCE ON CANADIAN OFFSHORE DRILLING AND DOWNHOLE TECHNOLOGY (CODD). [TEXTS OF PAPERS PRESENTED] EDMONTON, ALBERTA, SEPTEMBER 12-14, 1983.
Calgary, Alberta : s.n., 1983. 46 pp.

622.182 82 CODD 1983

This paper provides background information in support of concrete honeycomb structures for use in the arctic marine environment. The historical use of concrete as a marine arctic material is documented and the special considerations for its specific use, in arctic offshore drilling and production structures, is discussed. It is reported that the arrangement of modular, honeycomb framed concrete elements, in side by side and stacked configurations, is shown to provide a practical, cost-effective and mobile alternative to gravel or caisson retained islands. Numerous illustrations are included and a list of references is provided.

concrete / Arctic / technology / drilling, offshore / artificial islands / conferences

D 197 "The Use of Explosives in Marine Seismic Exploration."
G.R. Campbell.
In PROCEEDINGS OF THE WORKSHOP ON EFFECTS OF EXPLOSIVES USE IN THE MARINE ENVIRONMENT. JANUARY 29 TO 31, 1985, HALIFAX.
edited by C.D. Greene, F.R. Engelhardt and R.J. Paterson.
Canada Oil and Gas Lands Administration. Environmental Protection Branch. Technical Report No. 5.
s.l. : Canada Oil and Gas Lands Administration, 1985. pp. 16-48.

622.17 Wor

Chemical explosions are used for marine seismic exploration in a very limited number of exploration areas which are characterized by particular data acquisition problems (e.g. water too shallow for conventional seismic vessels, year-round ice cover that prohibits normal marine operations). This author gives examples of chemical explosive use near Sable Island, and in the Arctic Islands, and argues in favour of its continued use in certain circumstances.

seismic exploration / explosions / Arctic Islands / Sable Island, N.S. / workshops

D 198 "The Use of Remote Sensing in the Determination of Dispersant Effectiveness."
R.H. Goodman and M.R. MacNeill.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 143-160.

628.168 33 ASTM

This paper documents the results of research conducted to test the effectiveness of dispersants in an open-ocean, cold water environment. The research involved using remote sensing technology to obtain quantitative data on the spreading characteristics of an oil slick, and changes in inter facial tension, that affect dispersion as well as spreading. It is stated that the technique described here has the potential to measure the effectiveness of a dispersant without the need for an extensive water sampling program.

dispersants / oil spills / remote sensing / oil spill countermeasures / technology / pollution, oil / conferences / water temperature

D 199 THE USE OF SATELLITE DATA FOR MONITORING OIL SPILLS IN CANADA.
T.T. Alfoldi and N.A. Prout.
Canada. Environmental Protection Service. Economic and Technical Review No. EPS 3-EC-82-5.
Ottawa, Ontario : Canada. Environmental Protection Service, 1982. 64 pp.

628.168 33 Alf

In this document the state-of-the-art in satellite remote sensing of marine oil spills is reviewed, and methods for the acquisition and use of these satellite data in a spill emergency are detailed. References are included.

oil spills / remote sensing / oil detection systems / technology

D 200 USE OF THERMAL DISCHARGE FOR ICE MANAGEMENT FOR THE ARCTIC PRODUCTION LOADING BASIN.
Acres Santa Fe Inc.
Beaufort EIS Reference Works 1982.
Calgary, Alberta : Acres Santa Fe Incorporated, 1982. 14 pp.

387.16 Acr

Prepared for Dome Petroleum Limited, this study constitutes a brief review of the possibility of using a thermal discharge to control the accumulation of ice inside the proposed Arctic Production and Loading Basin for the Koakoak development. Without some measures to control ice growth, it is calculated that the undisturbed ice cover in the basin would typically reach a thickness of 1.9m and thickness in the ship track would be even greater - potentially 6.3m. Four different cases representing alternative management approaches are considered, and heat requirements are calculated in each. Using a mathematical model of unsteady heat transfer, a parametric study was made of the effects of the average frequency of tanker arrivals on heat requirements.

thermal discharge / ice, sea / ice management / tankers / Arctic / Koakoak / EIS / Dome / environmental impact / Beaufort Sea

D 201 "A View of the Mackay and Labofina Laboratory Tests for Assessing Dispersant Effectiveness with Regard to Performance at Sea."
D.C. Byford and P.J. Green.
In OIL SPILL CHEMICAL DISPERSANTS: A SYMPOSIUM SPONSORED BY ASTM, WEST PALM BEACH, FLORIDA, OCTOBER 12-13, 1982: ASTM SPECIAL TECHNICAL PUBLICATION 840.
Philadelphia, Pennsylvania : American Society for Testing and Materials, 1984. pp. 69-86.

628.168 33 ASTM

In this paper a comparison is made between the Mackay and Labofina tests for evaluating oil spill dispersants in terms of their correlation with effectiveness at sea. Both systems are explained, the tests conducted are analyzed and the results are presented. It is concluded that, while both systems have disadvantages, each is considered useful in predicting dispersant performance at sea.

pollution, oil / dispersants / oil spill countermeasures / conferences

D 202 "The Watercraft Offshore Canada Ltd. Arctic Escape System Project."
Bruce H.W.J. Seligman.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986: SAFETY SESSION.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
4 pp.

662.502 8 Arc 1986

This paper describes the Arctic trials of a 50 person pre-production prototype of an evacuation vehicle for use offshore in the Beaufort Sea. The development of the prototype - called the ARKTOS - is discussed, including the necessity for the vehicle to meet all the criteria of a standard totally-enclosed lifeboat. The ARKTOS would operate at temperatures of -50°C, and in high winds, on any ice surface experienced in the Beaufort Sea, with the capability of climbing from water on to ice.

conferences / Arctic / safety equipment / operations / technology / ice, sea / wind / safety measures / evacuation

D 203 "Well Logging in Permafrost."
J.K. Peterson, K. Kawasaki and T.E. Osterkamp.
In WORKSHOP ON PERMAFROST GEOPHYSICS, GOLDEN, COLORADO, 23-24 OCTOBER 1984.
edited by J. Brown, M.C. Metz and P. Hoekstra.
Hanover, New Hampshire : U.S. Army Cold Regions Research and Engineering Laboratory, 1985. pp. 68-70.

551.384 Wor

This paper discusses the value of exploration geophysics in the detection and delineation of permafrost. Of the many geophysical methods employed, well logging can be used not only for detection and delineation but also for the in-situ determination of many physical properties of permafrost. The technology which has been developed is described and some results are examined.

workshops / exploration / geophysics / technology / permafrost / well logs

NORTHERN ENERGY DEVELOPMENT

E 1 "The Arctic Environment and Legislation."
A.R. Thompson.
In THE CANADIAN ARCTIC AND NORTHERN REGIONS AND OTHER SELECTED MATTERS OF CURRENT INTEREST TO THE OIL AND GAS INDUSTRY: PETROLEUM LAW SUPPLEMENT.
edited by Maurice J. Sychuk.
Alberta Law Review: Special Issue, vol. X no. 3, 1972.
Edmonton, Alberta : University of Edmonton, Faculty of Law, 1972.
pp. 431-440.

343.077 2 Alb

This paper examines the background to the oil and gas industry's participation in the Arctic, the special problems of Arctic conditions and the jurisdictional and administrative framework of the Yukon Territory, Northwest Territories and northern offshore areas. The demands for public participation in the decision making process relative to environmental law are discussed and relevant legislation is examined.

Arctic / arctic conditions / legal aspects / legislation / northern energy development / public hearings / land use / Yukon Territory / Northwest Territories / DIAND / government / environmental protection

E 2 BEAUFORT SEA OIL AND GAS DEVELOPMENT.
M.P. Sharon Brown, Katherine A. Graham and Marget J. Wojciechowski.
Eastern Arctic Study, Case Study Series.
Kingston, Ontario : Centre for Resource Studies, Queen's University, 1985. 77 pp.

333.823 1 Bro

This case study examines exploration for hydrocarbon resources in the Beaufort Sea since the late 1960s. The study focuses on the interaction among three major proponents of development of the area's hydrocarbon resources: the oil companies (Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Resources Inc.), the federal and territorial governments, and communities in the region. The authors define issues emerging from the government/oil company/community interactions and suggest lessons to be learned from each issue in terms of industrial development and local involvement in that development.

exploration / Beaufort Sea / Dome / Esso / Gulf / government / YTG / GNWT / Yukon Territory / Northwest Territories / northern energy development / communities / Tuktoyaktuk, N.W.T. / Beaufort Sea Community Advisory Committee / environmental impact / socio-economic impacts / land claims / DIAND / COGLA / legislation / BSEARP / NEB

E 3 "Canadian Offshore Excellence - A Myth? The Government's View/The Industry's View."
E.F. Roots and Tom Beck.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
edited by Claudette Reed Upton.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 3-33.

333.823 15 Fro

These two speakers, one from government and one from industry, have divided their topic into four parts: a suggested framework for excellence if Canada is to develop and exploit its offshore oil and gas effectively; a review of problem areas in oil and gas development; suggested solutions to the identified problems; and a look at the importance of communication and cooperation between all parties involved in hydrocarbon resource development.

workshops / socio-economic aspects / environmental protection / technology / regulatory agencies / government / northern energy development

E 4 "Canadian Offshore Excellence - A Myth? The University View."
Norbert R. Morgenstern.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
edited by Claudette Reed Upton.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 44-51.

333.823 15 Fro

This paper presents an overview of the role of universities, in short to medium term research and development programs, in support of frontier oil and gas development. The author, drawing on experiences in the University of Alberta's Geotechnical Engineering Department, believes that universities can play a significant role and he provides background information and statistics to support his view. The author's proposals for increasing university involvement in frontier oil and gas development, and for increased university research applied to resource development, conclude this presentation.

workshops / hydrocarbon production / northern energy development / geotechnology / employment / government / technology / Alberta

E 5 [COMPENDIUM OF INFORMATION ON PROPOSED DEVELOPMENT OF MARINE SUPPORT BASE FOR GULF'S BEAUFORT SEA HYDROCARBON EXPLORATION PROGRAMME AT STOKES POINT, YUKON TERRITORY.] 1982-83.
[Canadian Arctic Resources Committee.]
Ottawa, Ontario : Canadian Arctic Resources Committee, n.d.
various pag.

333.823 21 CARC

This volume of materials on the proposed development of a marine support base at Stokes Point, Yukon, was compiled by the Canadian Arctic Resources Committee (CARC). The base at Stokes Point, proposed by Gulf Canada Resources, is intended to support Gulf's Beaufort Sea drilling program. CARC has collected and presents here the following documents: 1) a CARC briefing paper on the proposal; 2) a chronology of related events; 3) Gulf's plans for Stokes Point; 4) a statement on the environmental significance of the North Yukon; 5) a statement of the position of the Committee for Original Peoples' Entitlement (COPE) in terms of the proposal; 6) a statement of the position of the Yukon Territorial Government (YTG); 7) a paper entitled, "Why the rush for Beaufort Sea oil?"; 8) a statement of the purpose of CARC; and 9) supporting documents comprised of correspondence and press releases.

Stokes Point, Yukon / Yukon Territory, Northern / marine support base / Gulf / drilling, offshore / Beaufort Sea / CARC / environmental protection / COPE / YTG / northern energy development

E 6 "Does Canadian Content Benefit Canadians? The Local Northern View."
Suzie Huskey.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
edited by Claudette Reed Upton.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 112-115.

333.823 15 Fro

This author represents the Beaufort Sea Community Advisory Committee and the paper consists of a short review of that group's activities and organization. Funded by Dome Petroleum, but otherwise independent of them in every way, the group was formed in 1976, to monitor northern energy development in the Beaufort Sea area, and consists of members of Northwest Territories' communities - representatives of hunters' and trappers' associations, town or settlement councillors. The author discusses information- gathering tours taken by the committee, and identifies the major issues of concern relative to native people receiving benefits from hydrocarbon exploration and production in the Beaufort Sea region.

workshops / Beaufort Sea / Inuvik, N.W.T. / Great Britain / native peoples / Canadian content / hydrocarbon production / government / northern energy development / Dome / Sachs Harbour, N.W.T. / Holman Island, N.W.T. / Aklavik, N.W.T. / communities / Beaufort Sea Community Advisory Committee

E 7 ENERGY ALASKA.
Neil Davis.
s.l. : University of Alaska Press, 1984. 530 pp.

333.790 798 Dav

This book offers an understanding of Alaska's energy history, its complex present, and some insights into the future. The author combines the history of each resource with discussions on the aspects, characteristics and magnitude of each energy source and includes information on economics, logistics, politics and actual supply needs. The book provides an analysis of what is known and projected for each resource, relying on scientific research data from different fields. There are many tables and illustrations to supplement the text and a comprehensive index is provided.

Alaska / energy alternatives / hydrocarbon production / northern energy development / history / wood / coal / nuclear power / solar energy / wind

E 8 "Frontier Exploration - Hydrocarbon Reserve Potential."
R.A. Meneley.
In PROCEEDINGS OF THE EIGHTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 7-9, 1979.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Calgary, Alberta : Arctic Institute of North America, 1979.
pp. 20-27.

333.823 05 Arc 1979

This paper discusses the hydrocarbon reserves in the frontier areas of Canada. The author examines energy alternatives and gives a short history of oil exploration in this country. The major portion in this paper concentrates on describing the prospective frontier areas in detail, including the geology of each area, and the potential for energy development.

Beaufort Sea / Mackenzie Delta, N.W.T. / geology / natural gas / hydrocarbon reserves / Arctic Pilot Project / drillships / drilling, offshore / energy alternatives / Labrador / Baffin Bay / Arctic Islands / workshops

E 9 FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
edited by Claudette Reed Upton.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. 233 pp.

333.823 15 Fro

This volume contains the proceedings of the Tenth Environmental Workshop sponsored by the Arctic Petroleum Operators' Association (APOA), Eastcoast Petroleum Operators' Association (EPOA), Canadian Petroleum Association (CPA), and various federal government departments. The general topics are Canadian benefits and the regulatory process. Texts of addresses are presented, including reports, discussions, and recommendations arising from the workshop sessions. A list of participants is provided.

NOTE: Texts from relevant addresses are entered separately in this bibliography.

workshops / APOA / EPOA / CPA / DEMR / DOE / DFO / DIAND / DITC / TC / NRC / Canadian content / regulations / regulatory agencies / environmental protection / government

E 10 "The Green Paper on Lancaster Sound: A New Approach to Planning."
Herman J. Dirschl.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 254-267.

333.823 05 Arc 1980

Officially known as the Lancaster Sound Regional Study, the Lancaster Sound Green Paper was initially the result of a recommendation from the Environmental Assessment and Review Panel (EARP) that viewed an application, by Norlands Petroleums Ltd., for permission to drill in Lancaster sound, N.W.T., in 1979. This paper examines the progress of the Regional Study, and its evolution as a northern land planning program, which will evaluate conflicts and compatibilities arising from present and potential resource development. With the assistance of charts, the author illustrates the approach and methodology employed in conducting the study.

Lancaster Sound, N.W.T. / land management / regional planning / northern energy development / socio-economic aspects / environmental assessment / EARP / Norlands

E 11 ISSUES OF PUBLIC INTEREST REGARDING NORTHERN DEVELOPMENT: AN ANNOTATED BIBLIOGRAPHY.
Lynda M. Howard.
edited by Lynda M. Howard and Paul Davies, sponsored by Dome Petroleum Ltd.
Calgary, Alberta : Pallister Resource Management Ltd., 1984.
431 pp.

016.5 How

This select bibliography provides users with a list of available information relevant to the northern environment. The bibliography is of interest to people involved in northern development and looks at resources, people, social and economic conditions, cultural and political aspirations and community infrastructure. The entries are fairly brief and the annotations are not critical evaluations.

bibliographies & indices / northern energy development / Arctic Islands / Northwest Passage / Arctic / Labrador / Greenland / social conditions / Dome / socio-economic aspects

E 12 LAND USE PLANNING IN NORTHERN CANADA.
Canada. Department of Indian Affairs and Northern Development
s.l. : Canada. Department of Indian Affairs and Northern Development, 1982. 160 pp.

333.731 7 DIAND

The growing pace of northern energy and other industrial development, the continued reliance of native peoples on renewable resource harvesting, and the increased awareness and interest in conserving unique and sensitive areas have resulted in land and related resource use conflicts in many parts of the north. This document is a draft of the Department of Indian Affairs and Northern Development's (DIAND) proposed publication on northern land use planning. Land use planning is a process for determining the uses of land, and related resources based upon cooperative decision-making by governments, groups and individuals according to their various needs and desires and to the limitations imposed by the environment.

northern energy development / native peoples / native harvest / environmental protection / socio-economic aspects / DIAND / land use / government / YTG / GNWT / COPE / CARC / Inuvik, N.W.T. / regulatory agencies

E 13 MARCHING TO THE BEAT OF THE SAME DRUM: TRANSPORTATION OF PETROLEUM AND NATURAL GAS NORTH OF 60°. PROCEEDINGS OF THE SPECIAL COMMITTEE OF THE SENATE ON THE NORTHERN PIPELINE, MARCH 30, 1983. CHAIRMAN: EARL A. HASTINGS.
Canada. Parliament. Senate. Special Committee on the Northern Pipeline.
Canada. Parliament. Senate. Twenty-first Proceedings on Offshore Transportation Study.
Ottawa, Ontario : Canada. Parliament. Senate. Special Committee on the Northern Pipeline, 1983. 84 pp.

387.506 Can

The role of this Senate Special Committee was to examine, consider and report on the transportation of oil and natural gas in Canada, north of the 60th parallel, and on any matters relating thereto. This report emphasizes the Committee's opinion that it is not possible to consider hydrocarbon transportation in isolation from exploration, development and production and thus the committee's recommendations, presented in this report, cover more than simply the northern pipeline. They include concerns such as land claims, operating and safety standards, funding for experimental technology relative to cold ocean operations, education and training for northern residents and general social and economic considerations.

northern energy development / pipelines / exploration / operations / hydrocarbon production / tankers / transportation / socio-economic impacts / training / education / technology / land claims / safety measures / natural gas

E 14 1982 BEAUFORT SEA PLANNING MODEL: GENERAL ASSUMPTIONS.
Dome Petroleum Limited, Esso Resources Canada Limited, and Gulf Canada Resources Inc.
Beaufort EIS Support Document 1982.
s.l. : s.n., 1982. various pag.

333.823 215 DOME

The Beaufort Sea Planning model was developed by Dome Petroleum Limited, with the technical and financial assistance of Esso Resources Canada Limited and Gulf Canada Resources Inc. The model was designed to assist in analyzing the development options available for the Beaufort Sea-Mackenzie Delta Region. This volume, presenting the model in detail, allows planners to test various assumptions related to development which assist in narrowing down scenarios to a small group of feasible schemes. It is pointed out that, while the model is a useful planning tool, the final selection of a development plan for the hydrocarbon resources of the area will be based on discovery rates, operational practicality, technical and economic feasibility, as well as social and environmental concerns.

Beaufort Sea / Mackenzie Delta, N.W.T. / northern energy development / hydrocarbon reserves / exploration / Dome / Gulf / Esso / EIS / hydrocarbon production / natural gas / transportation / pipelines

E 15 NORTH OF 60. OIL AND GAS STATISTICAL REPORT NO. 3.
Canada. Department of Indian Affairs and Northern Development. Northern Oil and Gas Operations Division.
Canada. Department of Indian Affairs and Northern Development. Northern Oil and Gas Operations Division. Oil and Gas Statistical Report No. 3.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1984. 113 pp.

333.823 021 DIAND No. 3

This statistical report, compiled and annotated by officers of the Oil and Gas Management and Major Projects Directorate of the Department of Indian Affairs and Northern Development (DIAND), brings together in one volume data covering the history of the oil and gas industry in the north from 1920 to 1981. All the information presented is in the form of tables, graphs or charts.

statistics / northern energy development / DIAND / exploration / revenues / land management / resource-leasing / hydrocarbon production

E 16 NORTHERN DEVELOPMENT. THE CANADIAN DILEMMA.
Robert Page.
Toronto, Ontario : McClelland and Stewart Limited, 1986. 360 pp.

330.971 9 Pag

This book examines two northern development public policy forums of the 1970s - the Commission on the Mackenzie Valley Pipeline chaired by Mr. Justice Berger and the National Energy Board (NEB) hearings on northern pipeline development. The author discusses these forums in their broader historical context and analyses the problems facing northern development plans, such as environmental concerns, native land claims, technological aspects and the very large capital requirements of resource exploitation in the north. The matter of public participation in the process of northern development policy-making is discussed and, as well, consideration is given to the role of public interest groups as a third participant, with government and business, in decision-making. A comprehensive index is provided.

northern energy development / Mackenzie Valley Gas Pipeline / pipelines / NEB / Berger Report / public hearings / environmental assessment / environmental impact / land claims / native peoples / government / regulations / oil companies / technology / financing / natural gas / exploration / hydrocarbon production / AHGP / Beaufort Sea / Dene Nation / Inuit / ecology / socio-economic impacts

E 17 THE NORTHERN GAMBLE: PROCEEDINGS [OF THE] SEVENTH NORTHERN RESOURCES CONFERENCE, WHITEHORSE, YUKON, OCTOBER 14-16, 1981.
Whitehorse, Yukon : s.n., 1981. 115 pp.

333.715 Nor 1981

The texts of addresses and papers presented at the subject workshop are published in this volume. The subject scope of the individual papers is fairly wide while retaining relevance to the northern resource development theme. A list of registrants is provided.

conferences / northern energy development / Yukon Territory / exploration / mining / Beaufort Sea / drilling, offshore / government / environmental impact / Canadian content

E 18 OFFSHORE DEVELOPMENT IN ALASKA AND NORTHERN CANADA: A SEARCH.
Boreal Institute for Northern Studies.
Edmonton, Alberta : Boreal Institute for Northern Studies, 1985.
85 pp.

016.5 BINS

Each of the 204 entries in this bibliography has a short abstract. The entries are listed alphabetically by author surname and there is an author and title index. The scope of the bibliography is very broad and includes environmental considerations, offshore drilling, technology, engineering, socio-economic aspects, regulatory requirements and transportation concerns related to offshore hydrocarbon development in Alaska and northern Canada.

bibliographies & indices / Alaska / Beaufort Sea / Arctic / northern energy development / socio-economic aspects / technology / drilling, offshore / engineering / regulations / environmental impact / transportation, marine

E 19 OIL AND GAS NORTH OF 60. A REPORT OF ACTIVITIES IN 1969, OF THE OIL AND GAS INDUSTRY IN THE YUKON TERRITORY AND NORTHWEST TERRITORIES.
Canada. Department of Indian Affairs and Northern Development.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1970. 62 pp.

338.209 719 DIAND 1969

Oil and gas exploration activities in the Yukon Territory and Northwest Territories for 1969 are documented in this report. Estimates of oil and natural gas reserves are provided and information is given on such items as the number of permits issued, royalty rates, expenditures, geological exploration, number of wells drilled and gross revenues for the year. There are numerous tables, maps and diagrams used to supplement the text and some photographs are included.

Yukon Territory / northern energy development / Northwest Territories / resource-leasing / exploration / drilling / geology / revenues / royalties / hydrocarbon reserves / DIAND

E 20 OIL AND GAS TECHNOLOGIES FOR THE ARCTIC AND DEEPWATER.
United States. Congress. Office of Technology Assessment.
United States. Congress. Office of Technology Assessment. Report OTA-0-270.
Washington, D.C. : United States Government Printing Office, 1985. 227 pp.

622.338 2 OTA

The report explores the range of technologies required for exploration and development of offshore energy resources in the Arctic, and assesses associated economic factors and financial risks. As well, the report evaluates the environmental factors related to energy activities in frontier regions and considers government regulatory and service programs. For the purposes of this document, the Arctic is defined as the Alaska Continental Shelf and the Beaufort, Chukchi and Bering Seas and "deepwater" is defined as offshore areas where water depths exceed 400 meters.

northern energy development / technology / environmental protection / socio-economic aspects / government / regulations / Beaufort Sea / Bering Sea / Chukchi Sea / Continental Shelf, Alaska / drilling, offshore / exploration

E 21 "Petroleum Development in Northern Alaska."
Francois Bregha.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC, MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee, 1979. pp. 223-253.

330.971 9 Mar

This paper deals with hydrocarbon development in the Alaskan Beaufort Sea and North Slope, Alaska regions. The speaker examines the estimated hydrocarbon potential of the area, major development options, and transportation alternatives. The economic, technical and environmental factors which may affect the pace of development, and the mode of transportation, are discussed, as well as the U.S. government's regulations covering exploration, production and transportation.

conferences / Beaufort Sea, Alaskan / hydrocarbon reserves / hydrocarbon production / socio-economic aspects / environmental impact / North Slope, Alaska / technology / regulations / U.S.A. / transportation, marine / CARC

E 22 "Plausibility of Beaufort Sea Oil Production by the Mid-1980s."
G.R. Harrison.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 83-108.

333.823 05 Arc 1980

The author of this paper addresses the feasibility of oil discovered in the Arctic Ocean coming on-stream by the mid-1980s, and displacing most, or all, Canadian oil import requirements by 1990. A history of Dome's exploration work in the Beaufort Sea is outlined and the author goes on to discuss commercial reserves, technology, cost estimates, environmental considerations, and transportation. Considerable use is made of charts and graphs in this fairly detailed and technical paper.

Dome / Beaufort Sea / drilling, offshore / hydrocarbon reserves / environmental assessment / Arctic / transportation, marine / tankers / oil rigs / energy costs / pipelines / northern energy development / technology / APOA

E 23 "Problems of Optimal Management of Arctic Oil and Gas."
Milton Moore.
In PAPERS PRESENTED TO THE CANADIAN ARCTIC RESOURCES COMMITTEE (CARC), OTTAWA, 22 MARCH 1973.
Ottawa, Ontario : Canadian Arctic Resources Committee, 1973.
pp. 30-55.

346.046 823 Cro

This paper addresses the relationship of northern resource development to Canadian economic and industrial strategy. The author discusses the amount of oil and gas that should be exported, as well as the optimal timing of production and exports, from the various regions of Canada, and how best to achieve maximum efficiency of the industry while minimizing damage to the environment. Pipeline funding and native interests are examined, and the author identifies issues in northern energy development which impact on other facets of the country's economic stability.

northern energy development / socio-economic impacts / pipeline financing / native peoples / environmental protection / hydrocarbon production / natural gas / exports / Arctic

E 24 PROCEEDINGS OF THE EIGHTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 7-9, 1979.
sponsored by the Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Calgary, Alberta : Arctic Institute of North America, 1979. 171 pp.

333.823 05 Arc 1979

Texts of addresses, background materials, conclusions, and recommendations arising from the Eighth Arctic Environmental Workshop are included in this volume. The topics addressed by speakers include Arctic exploration, Arctic environmental studies, and deep water drilling, oil spills, and environmental/socio-economic assessment. This volume includes a list of registrants.

NOTE: Texts of relevant addresses have separate entries in this bibliography.

APOA / CPA / Arctic / northern energy development / drilling, offshore / Beaufort Sea / oil spills / environmental protection / socio-economic aspects / workshops

E 25 PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985, sponsored by the Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD).
edited by Pallister Resource Management Ltd., sponsored by the APOA and CPA-OOD.
Calgary, Alberta : Arctic Petroleum Operators' Association/Canadian Petroleum Association-Offshore Operators' Division, 1985. various pag.

333.823 05 Arc 1985

The proceedings of the fourteenth Annual APOA/CPA-OOD Workshop are presented in five main sections: Regulatory Regimes; Review of the Assessment Process and It's Application to Project Regulations; Industry Associations; Canada Benefits; and Safety. This volume contains the texts of addresses as well as introductory notes explaining the role of the APOA and the CPA-OOD.

NOTE: Texts of relevant addresses have separate entries in this bibliography.

APOA / CPA-OOD / regulations / regulatory agencies / Canadian content / northern energy development / safety measures / Arctic / Beaufort Sea / workshops / environmental assessment

E 26 PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980, sponsored by the Arctic Petroleum Operators' Association (APOA), Eastcoast Petroleum Operators' Association (EPOA), Dept. of Energy, Mines and Resources (DEMR), Environment Canada (DOE), Fisheries and Oceans Canada (DFO), and the Department of Indian and Northern Affairs (DIAND).
edited by Claudette Reed Upton.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. 431 pp.

333.823 05 Arc 1980

This volume contains the proceedings of the Ninth Environmental Workshop on offshore hydrocarbon development. Workshop sessions are divided as follows: Offshore Production, Evolution of Technology, Transportation, Development Impact, and Environmental and Social Issues. Texts of addresses are presented along with a summary of discussion periods. A list of registrants is provided.

NOTE: Texts of relevant addresses have separate entries in this bibliography.

northern energy development / environmental protection / drilling, offshore / hydrocarbon production / technology / transportation / socio-economic aspects / Arctic / APOA / EPOA / DEMR / DIAND / DOE / DFO / workshops / Beaufort Sea

E 27 PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978, sponsored by the Arctic petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
edited by S. Jones and D. Mackay.
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. 161 pp.

333.823 05 Arc 1978

The proceedings of the Seventh Arctic Environmental Workshop are contained in this volume. Current petroleum exploration techniques and technologies, in use in the Arctic offshore, are reviewed. Texts of addresses and background materials, conclusions, and recommendations arising from the workshop are presented. Topics discussed include underwater well completion, artificial islands, drilling vessel types, Beaufort Sea drilling and environmental studies. A list of workshop participants is included.

NOTE: Texts of relevant addresses have separate entries in this bibliography.

APOA / CPA / northern energy development / environmental protection / drilling, offshore / hydrocarbon production / wells / Beaufort Sea / Arctic / artificial islands / technology / workshops

E 28 PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP: FRONTIER UPDATE '84, FAIRMONT, B.C., MAY 6-9, 1984.
edited by Pallister Resource Management Ltd.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. 158 pp.

333.823 05 Arc 1984

The subject workshop was sponsored by the Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD). This volume contains the workshop proceedings, which are presented under three main headings: social and economic considerations in frontier areas; government research programs and industry; and project assessment - an overview. Texts of addresses are published herein and a list of delegates attending the workshop is included.

NOTE: Texts of relevant addresses have separate entries in this bibliography.

APOA / CPA-OOD / socio-economic aspects / government / northern energy development / Arctic / Beaufort Sea / workshops

E 29 "Project Management of Beaufort Sea Development: The Unique Challenge."
David G. Stenning and John R. Smith.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
14 pp.

620.411 3 AOTC 1986

The purpose of this paper is to identify some of the project management challenges posed by production development projects in the Beaufort Sea, concentrating on the areas which are somewhat unique in comparison to non-Arctic projects. The project phases which are most unique and upon which this paper focuses are: design criteria and philosophy; concept development; installation; and operation.

conferences / Beaufort Sea / Arctic / northern energy development / project management / operations / exploration / technology

E 30 RESOURCE DEVELOPMENT IN CANADA'S NORTH: MANAGING IMPACTS ON PEOPLE AND THEIR ENVIRONMENT.
Denis M. Watson.
Presentation to: "Strategies for Environmentally Sound Development on the Mining and Energy Industries".
s.l. : s.n., 1984. n.p.

333.715 Wat

The author of this paper discusses the economic, social and environmental impacts of mining and energy development in the Canadian north. The roles of resource companies, federal government departments and regulatory agencies are explained, particularly the National Energy Board (NEB) and the Environmental Assessment and Review Panel (EARP). Rapid change, conflicts of people and their goals and the search for compromise are assessed relative to the development of northern energy resources.

northern energy development / NEB / EARP / government / socio-economic impacts / native peoples / Yukon Territory / Northwest Territories / environmental impact / regulatory agencies / Faro, Yukon

E 31 "The Role and Perceptions of Public Interest Groups or 'The View from CARC'."
William E. Rees.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 288-305.

333.823 05 Arc 1980

The author of this paper is a member of the Canadian Arctic Resources Committee (CARC). It is the belief of this group that the biophysical and political facts of resource development decisions in Canada demand a clear understanding of, and respect for, the public interest. The author explains that CARC's role is that of a catalyst encouraging government and industry to face the critical issues and choices associated with northern development. CARC's research programs, information and publishing programs and perspectives on the northern environment, including the activities of the environmental assessment and review process, are examined. A short list of references is included with this paper.

CARC / environmental assessment panels / northern energy development / public hearings / regional planning / government / DIAND

E 32 "The Role of Non-Government Groups in Project Assessment and the Regulatory Process."
Peter Burnet.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association - Offshore Operators' Division (CPA-OOD), 1984. pp. 142-143.

333.823 05 Arc 1984

The author of this brief paper is the Executive Director of the Canadian Arctic Resources Committee (CARC). From the perspective of non-governmental groups (such as CARC), the author discusses his view of the excessive length of the government's approval process for major northern development proposals. He presents his opinion that one important cause of this situation is the failure of industry, and to an extent government, to accept the legitimacy of a role for non-governmental agencies in project assessment and approval. A short review of roles which can be taken by non-governmental groups, and the importance of such intervention, conclude this paper.

CARC / northern energy development / regulatory agencies / government / public hearings / oil companies / workshops

E 33 "Update on Northern Oil and Gas Developments."
Jim Hea.
In THE NORTHERN GAMBLE: PROCEEDINGS [OF THE] SEVENTH NORTHERN RESOURCES CONFERENCE, WHITEHORSE, YUKON, OCTOBER 14-16, 1981.
Whitehorse, Yukon : s.n., 1981. pp. 94-95.

333.715 Nor 1981

This speaker presents an overview of northern oil and gas development and highlights recent exploration activities in the Beaufort Sea and the Arctic generally. As well, the importance of northern Canadian hydrocarbon development, relative to Canada's total energy picture, is discussed and the role of the federal government in promoting and regulating development is addressed.

exploration / northern energy development / Beaufort Sea / Arctic / environmental impact / government / regulations / legislation / energy requirements

GOVERNMENT

F 1 ALASKA HIGHWAY GAS PIPELINE PROJECT. TRANSPORTATION AND LOGISTICS PLAN. PHASE II.
Foothills Pipe Lines (Yukon) Ltd.
s.l. : Foothills Pipe Lines (Yukon) Ltd., 1982. various pag.

330.971 FPL(Y)

This plan for Phase II construction of the Alaska Highway Gas Pipeline (AHGP) was prepared for submission to the Northern Pipeline Agency in response to requirements, specified in the socio-economic terms and conditions for north B.C., Swift River, and the draft socio-economic terms and conditions for South Yukon, for a transportation and logistics plan. Two principal socio-economic objectives are dealt with: 1) Foothills Pipelines (Yukon) Ltd.'s (FPL(Y)) endeavour, in its use of existing transportation facilities, not to disrupt those services; and 2) FPL(Y)'s responsibility to bear the cost of any additional transportation infrastructure provided at the request of the company, and its assurance that such infrastructure will be built, maintained and disposed of to provide maximum long term benefit to those communities affected by the additional infrastructure.

AHGP / FPL(Y) / transportation / Northern Pipeline Agency / socio-economic impacts / pipelines / British Columbia / Swift River / Yukon Territory / communities

F 2 APPLICATION TO THE NATIONAL ENERGY BOARD FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING THE CONSTRUCTION OF PIPELINE FACILITIES AND TO THE DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT TO USE LAND.
Polar Gas Ltd.
Toronto, Ontario : Polar Gas Ltd., 1984. 10 v.

330.971 Pol

These volumes contain documentation, pertinent to Polar Gas Ltd.'s application to the Department of Indian Affairs and Northern Development (DIAND) for a grant of all interests in lands located in the Northwest Territories, required for the construction, operation and maintenance of a natural gas transmission pipeline and related facilities. As well, Polar Gas Ltd.'s application to the National Energy Board (NEB) for a Certificate of Public Convenience and Necessity to authorize the construction and operation of the pipeline is included, together with supporting documents.

DIAND / Polar Gas / pipeline co. applications / NEB / pipeline construction / government

F 3 APPLICATION TO THE NATIONAL ENERGY BOARD FOR A LICENCE FOR THE EXPORT OF GAS UNDER PART VI OF THE NATIONAL ENERGY BOARD ACT.
Columbia Gas Development of Canada Ltd.
s.l. : s.n., 1979. various pag.

330.971 CGDC

In addition to the application to the National Energy Board (NEB) by Columbia Gas Development of Canada for a gas export licence, this volume also contains supporting documentation, including a transmission and processing agreement, gas purchase and sales contracts, descriptions of gas flow and markets in the United States, and information on gas reserves and deliverability. The gas in question is from the Kotaneelee field in the Yukon Territory.

NEB / Columbia Gas Development of Canada / exports / natural gas / hydrocarbon reserves / Kotaneelee Field / Yukon Territory / U.S.A. / government / legislation

F 4 "Approval of the Bent Horn Project."
D.R. Whelan.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. B38-B45.

333.823 05 Arc 1985

This paper reviews what the Canadian Oil and Gas Lands Administration (COGLA) has learned, from the Bent Horn Project, about the regulatory approvals which are required by the Canada Oil and Gas Act and the Oil and Gas Production and Conservation Act. As well, the process by which those approvals are granted is described. While other government processes are discussed, the main emphasis is on those approvals for which COGLA is responsible. The Bent Horn project is notable because it involves, for the first time, the production and transportation of crude oil from the Arctic Islands.

COGLA / Bent Horn Project / DIAND / government / legislation / regulations / regulatory agencies / hydrocarbon production / Panarctic Oils / Arctic Islands / northern energy development / transportation, marine / tankers / workshops

F 5 "Arctic Marine-Oriented Research and Development."
Robert A. Dick.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee, 1979. pp. 59-64.

330.971 9 Mar

This paper examines present government policy in terms of marine research and development, which is mainly by partial-funding of industry-promoted projects. The diverse viewpoints of environmentalists and industrialists, concerning the tapping of Arctic resources, are discussed and emphasis is placed on the need for political parties and government agencies to encourage the development of Arctic resources, while ensuring protection of the national interest and environmentally sensitive areas. It is the author's view that environmental activists must be prepared to accept solutions other than a "hands-off" policy but that industrial interests, while pursuing the development of commercial projects, must give every consideration to the protection of the environment. These considerations require the expenditure of funds and the government's role in this process is discussed.

conferences / government / northern energy development / Arctic / CARC / environmental protection / exploration / technology / regulatory agencies / financing / national interest

F 6 ARCTIC MARINE TRANSPORTATION R & D PLAN 1986/87 TO 1990/91 (PHASE III), 2ND EDITION.
Sypher Consultants.
Ottawa, Ontario : Canada. Department of Transport, 1985. 2 vol.

665.543 Syp

This document describes the Arctic Marine Transportation R & D (research and development) Plan - Phase III. The federal government has been monitoring and evaluating the developments in the Arctic in order to ensure that concerns related to marine transportation are identified and dealt with appropriately. This process has resulted in a number of initiatives, including the development of special regulations, the undertaking of environmental assessments, and the creation of administrative bodies to focus government activities and responsibilities. Volume 1 of this set contains the text of the research and development plan and Volume 2, the appendices.

Arctic / transportation, marine / government / regulations / environmental assessment / ice-breaking vessels / DOE / DFO / DIAND / NRC / technology / financing / TC / tankers

F 7 AN ASSESSMENT OF THE IMPACT OF REGULATORY REGIMES ON OIL AND GAS EXPLORATION ON LAND NORTH OF 60°.
Dimensions Planning Ltd., in association with Manadrill Management Inc.
Calgary, Alberta : Dimensions Planning Ltd., 1986. 130 pp.

333.823 1 Dim

This report, prepared for the Department of Indian Affairs and Northern Development (DIAND), presents a comparative review of the regulatory costs of oil and gas exploration in the Mackenzie Valley and Delta on land areas, relative to the costs of comparable activities south of 60° in northern Alberta and/or northeastern British Columbia. The approach taken by the study team is described and the key contributors to additional costs are examined. Preliminary recommendations for change, based on the findings of the study, are presented. Appended information includes typical well cost breakdowns, a list of relevant acts and regulations, revised Canada benefits principles, and a bibliography.

DIAND / Mackenzie Valley, N.W.T. / Mackenzie Delta, N.W.T. / Alberta / British Columbia / legislation / regulations / COGLA / Canadian content / exploration / land use / land claims / socio-economic aspects

F 8 THE ASSIGNMENT AND REGISTRATION OF CROWN MINERAL INTERESTS WITH PARTICULAR REFERENCE TO THE CANADA OIL AND GAS ACT.
N.D. Bankes.
Canadian Institute of Resources Law. Working Paper 5.
Calgary, Alberta : Canadian Institute of Resources Law, University of Calgary, 1985. 126 pp.

346.046 823 Ban

The subject of this paper is the registration of Crown mineral interests. The first section examines the various types of registration systems for deeds, charges and titles. The second section analyzes the registry systems for Crown minerals utilized in Alberta and Australia. The third section reviews the two major interests available under the Canada Oil and Gas Act - exploration agreements and production licences, analyzing the legal nature of each.

Crown mineral interests / legislation / legal aspects / exploration / regulations / government

F 9 BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL: DRAFT GUIDELINE MEETINGS: [TRANSCRIPT OF PROCEEDINGS - PUBLIC MEETINGS] COMMUNITY SESSION.
Beaufort Sea Environmental Assessment Panel.
s.l. : Beaufort Sea Environmental Assessment Panel, [1981]. 3 v.

333.823 21 BSEAP(4)

These volumes contain the transcripts of the community sessions of public meetings of the Beaufort Sea Environmental Assessment Panel (BSEAP). There are transcripts of the meetings held in Fort Norman, N.W.T., Inuvik, N.W.T., and Tuktoyaktuk, N.W.T. for the purpose of reviewing the BSEAP's draft guidelines set out for the use of oil companies when preparing an Environmental Impact Statement (EIS).

BSEAP / environmental assessment / Beaufort Sea / Fort Norman, N.W.T. / Inuvik, N.W.T. / Tuktoyaktuk, N.W.T. / EIS / Dome / Gulf / Esso / public hearings / socio-economic impacts / government

F 10 BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL: DRAFT GUIDELINE MEETINGS: [TRANSCRIPT OF PROCEEDINGS - PUBLIC MEETINGS] GENERAL SESSION.
Beaufort Sea Environmental Assessment Panel.
s.l. : Beaufort Sea Environmental Assessment Panel, [1981]. 7 v.

333.823 21 BSEAP(5)

These volumes contain the transcripts of general public meetings of the Beaufort Sea Environmental Assessment Panel (BSEAP). The meetings were held to discuss the draft guidelines compiled by the BSEAP relative to the preparation by Dome/Gulf/Esso of an Environmental Impact Statement (EIS) on their proposed hydrocarbon development in the Beaufort Sea. There are transcripts for the meetings held in Calgary, Alberta, Inuvik, N.W.T., Pangnirtung, N.W.T., Pond Inlet, N.W.T., Whitehorse, Yukon, and Yellowknife, N.W.T.

BSEAP / environmental assessment / Dome / Gulf / Esso / Beaufort Sea / Calgary, Alberta / Inuvik, N.W.T. / Pangnirtung, N.W.T. / Pond Inlet, N.W.T. / Whitehorse, Yukon / Yellowknife, N.W.T. / public hearings / socio-economic impacts / government / EIS

F 11 BEAUFORT SEA HYDROCARBON PRODUCTION AND TRANSPORTATION PROPOSAL: FINAL REPORT OF THE ENVIRONMENTAL ASSESSMENT PANEL.
Canada. Federal Environmental Assessment Review Office.
Federal Environmental Assessment and Review Process ; 25.
Ottawa, Ontario : Federal Environmental Assessment Review Office, 1984. 146 pp.

333.823 163 27 Fed

This report, for the Minister of the Environment and the Minister of Indian Affairs and Northern Development, details the Beaufort Sea Environmental Assessment Panel's (BSEAP) review of the Beaufort Sea hydrocarbon production and transportation proposal. The report focuses on the proposal submitted by Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Resources Inc., on behalf of all acreage holders in the Canadian Beaufort Sea-Mackenzie Delta region. In some detail, the following topics are discussed and recommendations are included: review process; proposal; oil spills and risk; human environment; natural environment; and government management.

environmental assessment / environmental assessment panels / FEARO / BSEAP / hydrocarbon production / Beaufort Sea / socio-economic impacts / Dome / Esso / Gulf / oil spills / oil spill research

F 12 "The Bent Horn Project - Approval and Regulatory Process for a Small Project."
K.G. Alexander.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. B46-B50.

333.823 05 Arc 1985

This short paper presents a view of the regulatory process, relative to northern energy development, from the perspective of an applicant. In this case, the applicant is Panarctic Oils and the application refers to the Bent Horn project. In this very small project the oil comes from a single existing well. However, despite its size, the project involves, for the first time, the production and transportation of crude oil from the Arctic Islands.

Panarctic Oils / Bent Horn Project / hydrocarbon production / regulatory agencies / regulations / Arctic Islands / northern energy development / government / environmental assessment / Canadian content / tankers / transportation, marine / oil wells / workshops

F 13 C.E.I.C. POSITION STATEMENT. IMPACT OF OFFSHORE OIL DEVELOPMENT IN THE BEAUFORT SEA ON THE CANADIAN EMPLOYMENT AND IMMIGRATION COMMISSION.
Canada Employment and Immigration Commission.
s.l. : s.n., 1982. 47 pp.

351.83 CEIC

The Canada Employment and Immigration Commission (CEIC) is generally considered to be a responding organization, reacting to job seekers' and employers' needs. CEIC believes that it must now incorporate a pro-active strategy as an integral part of its role. This position paper on Beaufort Sea hydrocarbon production reviews the Commission's existing legislation, mandates and responsibilities and describes some of the programs and services of the Commission as they relate to hydrocarbon development in the north.

CEIC / employment / hydrocarbon production / legislation / Beaufort Sea / training / northern energy development

F 14 "Canada's Frontier Lands - A New Regulatory Direction."
Maurice E. Taschereau.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, OCTOBER 28-31, 1986.
Calgary, Alberta : Arctic Offshore Technology Conference, 1986.
8 pp.

620.411 3 AOTC 1986

This author, who represents the Canada Oil and Gas Lands Administration (COGLA), describes Canada's policy and legislation (Canada Petroleum Resources Act) relative to frontier hydrocarbon development. As well, the establishment of a regulatory regime and a fair bidding process are addressed in this short paper.

conferences / government / COGLA / legislation / regulations / exploration / drilling / northern energy development

F 15 "Canada's Petroleum Leasing Policy - A Cornucopia For Whom?"
Andrew Thompson and Michael Crommelin.
In PAPERS PRESENTED TO THE CANADIAN ARCTIC RESOURCES COMMITTEE, OTTAWA, 22 MARCH, 1973.
Ottawa, Ontario : Canadian Arctic Resources Committee, 1973.
pp. 1-29.

346.046 823 Cro

This paper examines the arrangements and legislation governing leases for oil and gas exploration in the Canadian north, royalty payments and tenures. The authors (one of whom is an expert in oil and gas law and the other a legal specialist in oil and gas policy) argue that the existing leasing regulations are a resource "give-away" and not in the public interest. There is a review of the current system, and suggestions for changes which would see a balance struck between serving the public interest and preserving the investment which industry has made.

government / legislation / resource-leasing / energy policy / northern energy development / regulations / environmental protection / socio-economic impacts / CARC / exploration / royalties

F 16 CANADIAN ENERGY POLICY: AN INTERIM REPORT. PROCEEDINGS OF THE STANDING SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES, AUGUST 21, 1985. CHAIRMAN EARL E. HASTINGS.
Canada. Parliament. Senate. Standing Committee on Energy and Natural Resources.
Third Report of the Committee.
Ottawa, Ontario : Standing Senate Committee on Energy and Natural Resources, 1985. 31 pp.

333.791 097 1 Can

The role of the Standing Senate Committee on Energy and Natural Resources is to review the National Energy Program (NEP) and its effect on Canadian energy development. This interim report addresses two issues. Firstly, the fiscal arrangements, structure and behavior of the domestic petroleum industry are reviewed and, secondly, the question of energy policy-making in the national interest is considered.

government / NEP / energy policy / financing / foreign ownership / taxation / Canadian content / energy alternatives / hydrocarbon production / natural gas

F 17 "The Canadian Labour Code and Its Effect on our Frontier Activities."
L.V. Brandon.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. C16-C17.

333.823 05 Arc 1985

This very brief paper presents an overview of Part IV of the Canadian Labour Code and its possible effect on our frontier activities. The various regulations and legislation, as they apply to hydrocarbon exploration and production, and their present status, are discussed.

legislation / safety measures / government / regulations / regulatory agencies / COGLA / shipping / exploration / pipelines / natural gas / workshops

F 18 THE CANADIAN REGULATION OF OFFSHORE INSTALLATIONS.
Christian G. Yoder.
Canadian Institute of Resources Law. Working Paper 9.
Calgary, Alberta : Canadian Institute of Resources Law. University of Calgary, 1985. 116 pp.

343.710 722 Yod

This paper discusses Canadian regulations for offshore installations involved in the search for hydrocarbon resources. In the first four parts of the paper, sources of law that impact on offshore installations are examined: 1) coastal oil and gas regulatory law; 2) maritime law; 3) environmental law; and 4) labour law. In part five, selected problems raised by the interface between those sources of law are discussed. The author provides a Table of Statutes, Table of Regulations and a Table of Cases Cited.

legal aspects / legislation / regulations / maritime law / environmental protection / COGLA / drilling, offshore

F 19 "Canadian Security Policy in the Arctic: The Context for the Future."
W. Harriet Critchley.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee, 1979. pp. 181-209.

330.971 9 Mar

This paper discusses the strategic value of Canada's high Arctic and national security policy in that regard. The speaker argues that three sets of factors are particularly significant in this area and suggest the need for change in defence priorities and foreign policy. The factors are: changes in, and disputes concerning, international law of the sea; the energy shortage and its ramifications for the high Arctic; and certain developments in military technology which may cause parts of the Arctic to become a new focus of military activity. Each of these sets of factors is examined and the effects of their combination on defence and foreign policy are analyzed.

conferences / Arctic / northern energy development / national security / foreign policy / maritime law / technology / CARC / military aspects

F 20 "The Challenge of the 80's: A Government View."
John H. Parker.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 4-6.

380.5 Nor

This author, the serving Commissioner of the Northwest Territories, provides an overview of the transportation system in the Northwest Territories and explains the growth of the transport networks in the seventies. Emphasis is placed on the fact that because the population is widely dispersed, economic regulation by the Canadian Transport Commission (CTC) is preferable to any move towards deregulation. The presentation concludes by the author explaining that, under the Government of the Northwest Territories' (GNWT) Resource Development Policy, further development of northern resources, including transportation, must be judged to have a net benefit to the peoples of the north before being undertaken.

conferences / Northwest Territories / GNWT / transportation / CTC / regulations / northern energy development / transportation, air / transportation, marine

F 21 "The Challenge of the 80s: A User's View."
Charles R. Hetherington.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 7-8.

380.5 Nor

In this short paper, the author contends that reduced cash flows accruing to the western Canadian resource industry under the National Energy Policy (NEP) represent the major obstacle towards achieving energy self sufficiency. It is argued that changes in taxation and royalty regulations, removal of imported crude oil subsidies, creation of a single window for industries dealing with government agencies, and simplification of government project approval processes would lead to increased development activity.

conferences / NEP / taxation / royalties / regulations / regulatory agencies / government

F 22 "Coast Guard Support of Northern Shipping."
R.A. Quail.
In THE CHALLENGE OF THE EIGHTIES. PROCEEDINGS [OF THE] NORTHERN TRANSPORTATION CONFERENCE, WHITEHORSE, YUKON, OCTOBER 5-7, 1982.
Edmonton, Alberta : Co-op Press Ltd., 1982. pp. 183-193.

380.5 Nor

This paper outlines the Canadian Coast Guard's responsibilities as vested through the Canada Shipping Act, the Arctic Waters Pollution Prevention Act, the Navigation Act and other legislation. Particular emphasis is placed on plans and government policies relative to the anticipated marine activity associated with arctic hydrocarbon development. Transport Canada's (TC) role in this process and some of their proposed programmes are outlined.

conferences / Canadian Coast Guard / TC / legislation / government / shipping / Arctic / transportation, marine / navigation / pollution

F 23 "COGLA's Role in Project Assessment."
Sheryl Kennedy.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 130-133.

333.823 05 Arc 1984

The Canadian Oil and Gas Lands Administration (COGLA) is involved with almost every aspect of the activities of oil and gas exploration, and production, in Canada. After explaining the administrative organization of COGLA, the author of this paper continues by discussing the role COGLA plays in project assessment in Canadian hydrocarbon development projects. Aspects examined include what COGLA's involvement consists of, and at what stage of development the involvement occurs, as well as how project assessment is carried out. In conclusion, the author defines COGLA's objective in project assessment - to design and develop better projects in a timely manner.

government / COGLA / regulations / regulatory agencies / hydrocarbon production / natural gas / legislation / environmental assessment / Canadian content / workshops

F 24 "Comments on the Beaufort Environmental Assessment Review Panel."
G.N. Faulkner.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. B11-B21.

333.823 05 Arc 1985

This paper presents some of the views of the Department of Indian Affairs and Northern Development (DIAND) on significant events taking place with regard to Beaufort Sea development, particularly the Beaufort Sea Environmental Assessment Review Panel (BSEARP). After briefly reviewing the recommendations from BSEARP, the author of this paper concludes that the panel's study had made a positive contribution to the evolution of resource development in the north.

Beaufort Sea / Mackenzie Delta, N.W.T. / BSEARP / hydrocarbon production / exploration / environmental assessment panels / DIAND / pipelines / environmental impact / Dome / Gulf / Esso / northern energy development / government / natural gas / workshops

F 25 COMPETITION IN THE CANADIAN PETROLEUM INDUSTRY.
Canada. Restrictive Trade Practices Commission. O.G. Stoner, Chairman.
Ottawa, Ontario : Canada. Restrictive Trade Practices Commission, 1986. 3 vol.

338.230 971 Can

This report, in three volumes, is the result of proceedings carried out under section 47 of the Combines Investigation Act relating to the exploration for, and the importation, production, purchase, manufacture, storage, transportation, distribution and supply of crude oil, petroleum, refined petroleum products and related products. The report includes the Commission's appraisal of the industry and recommendations to the government on an effective competition policy. Volume 1 contains the full report of the Commission, volume 2 contains appendices and volume 3 provides an abridged version of the report, containing introductory chapters, conclusions and recommendations.

government / legislation / petroleum industry / energy policy / markets / energy costs / petrochemicals

F 26 A COMPREHENSIVE CONSERVATION POLICY AND STRATEGY FOR THE NORTHWEST TERRITORIES AND YUKON. DRAFT DISCUSSION PAPER.
Canada. Department of Indian Affairs and Northern Development.
s.l. : Canada. Department of Indian Affairs and Northern Development, 1982. 98 pp.

333.720 971 9 DIAND

This draft discussion paper begins by reviewing the limited success of the Department of Indian Affairs and Northern Development (DIAND), over the previous decade, in dealing with proposals to establish conservation and recreation areas north of 60°. The paper goes on to identify DIAND's roles and responsibilities in this process, namely DIAND's status as the federal agency responsible for the control, management and administration of northern public lands, and the formulation, implementation and coordination of government activities, programs and policies in the north. Emphasizing these roles, this paper presents a conservation strategy, including draft position papers on national parks and ecological reserves.

DIAND / recreation / environmental protection / government / Yukon Territory / Northwest Territories / national parks / ecology / regional planning / land use / land claims

F 27 "Current Developments in Oil and Gas Taxation."
John G. MacDonald.
In THE CANADIAN ARCTIC AND NORTHERN REGIONS AND OTHER SELECTED MATTERS OF CURRENT INTEREST TO THE OIL AND GAS INDUSTRY: PETROLEUM LAW SUPPLEMENT.
edited by Maurice J. Sychuk.
Alberta Law Review: Special Issue, vol. X no. 3, 1972.
Edmonton, Alberta : University of Edmonton, Faculty of Law, 1972. pp. 506-522.

343.077 2 Alb

This article summarizes the current law with respect to income taxation of oil and gas production, and then outlines and analyzes the changes in taxation of the oil and gas industry contained in Bill C-259. Exploration and development expenses, depletion allowances, the purchase and sale of oil and gas rights, and oil and gas drilling funds are discussed. The author concludes that the proposed new law would not appear likely to unduly impede the growth and development of the Canadian oil and gas industry.

taxation / legislation / exploration / hydrocarbon production / natural gas / drilling funds / government

F 28 "Does Canadian Content Benefit Canadians? The National View."
George Hughes-Adams.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 105-111.

333.823 15 Fro

This paper discusses two principles concerning industrial development, namely, capitalizing on Canada's energy base in order to build a world-competitive industrial sector, and ensuring that the federal government is an active player in industrial development rather than simply being a passive referee. As a representative of the federal Department of Industry, Trade and Commerce, this speaker examines changes and plans, within that Department, which will facilitate more effectively the cooperation necessary to implement major frontier developments to the satisfaction of both government and industry.

workshops / northern energy development / government / technology / regulatory agencies / marketing / exploration / hydrocarbon production

F 29 DRILLING FOR OIL AND GAS ON CANADA LANDS. GUIDELINES AND PROCEDURES. SEPTEMBER 1984.
Canada. Oil and Gas Lands Administration.
s.l. : Canada. Department of Energy, Mines and Resources and Department of Indian Affairs and Northern Development, 1984. various pag.

343.077 2 COGLA

The Canadian Oil and Gas Lands Administration (COGLA) is the agency responsible for the administration of oil and gas activity in the Canada lands. The purpose of this document is to provide actual and prospective oil and gas operators with guidelines and information to assist them in meeting regulatory requirements, with the focus on drilling activity. The document is divided into three principal parts which deal with the three major regulatory themes laid out in the drilling regulations: 1) drilling program approval; 2) authority to drill a well; and 3) requirements related to drilling operations, post-drilling reports and well materials.

COGLA / regulations / government / legislation / drilling / drilling, offshore / Canadian content

F 30 ENVIRONMENT CANADA BRIEF TO THE SPECIAL COMMITTEE OF THE SENATE ON THE NORTHERN PIPELINE: APPENDICES.
Canada. Environment Canada, Policy Directorate, Corporate Planning Group.
Ottawa, Ontario : Canada. Environment Canada, 1982. 17 pp.

351.08 Env

In these appendices to Environment Canada's brief on the proposed northern pipeline, the mandates and programs of the Department of the Environment (DOE) are listed, including legal mandate and departmental objectives. Each act administered by the department, and the administering agency, is reviewed and major programs are briefly described.

DOE / government / legislation / environmental protection / FEARO / pipelines

F 31 "Environmental Impact R&D Program Overview: Conventional Oil and Gas Task Federal Energy Research and Development."
Wayne Richardson.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 96-104.

333.823 05 Arc 1984

The purpose of this paper is to provide a brief overview of the research and development studies, currently funded by the federal government's Panel on Energy Research and Development (PERD), which specifically relate to the environmental impact of offshore oil and gas development in Canada. The role and objectives of the environmental impact program are discussed and a summary of resource allocations, achievements and future plans is included. A series of appendices provides more detailed information and descriptions of the various projects, and statistical data, relative to the panel's activities.

government / environmental impact / drilling, offshore / hydrocarbon production / exploration / PERD / natural gas / artificial islands / oil detection systems / pollution, oil / Arctic / ecology, marine / fisheries / ecosystems, aquatic / fish / mammals, marine / seabirds / ice, sea / Grand Banks / workshops

F 32 THE ENVIRONMENTAL STUDIES REVOLVING FUNDS AND OFFSHORE OIL AND GAS. WORKSHOP REPORT, HALIFAX, N.S., MAY 30 - JUNE 1, 1982.
Ottawa, Ontario : Canadian Arctic Resources Committee, 1982. 90 pp.

351.009 3 CARC

The Canada Oil and Gas Act provides for the administration of oil and gas exploration and development activities on Canada lands, which include the offshore. The act creates two Environmental Studies Revolving Funds (ESRF) which are administered north of 60° by the Department of Indian Affairs and Northern Development (DIAND) and south of 60° by the Canada Oil and Gas Lands Administration (COGLA). The purpose of the ESRF is to provide for environmental or social studies that will assist these agencies in deciding whether or not to authorize oil and gas activities in a particular region. This volume synthesizes the discussions and extracts trends and recommendations from a two day workshop which brought together professionals, with diverse experience in the offshore areas of Canada, in an attempt to reach a broad concensus on the use of the ESRF. A list of participants is included.

legislation / ESRF / CARC / DIAND / environmental assessment / socio-economic aspects / exploration / workshops / COGLA / government / drilling, offshore

F 33 "Environmental Studies Revolving Funds Structure, Application and Future."
J. McTaggart-Cowan.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983. pp. 37-43.

333.823 05 Arc 1983

This paper outlines the management structure of the Environmental Studies Revolving Funds (ESRF) and the flow of events within ESRF study proposals. It is explained that the ESRF is established under the Canada Oil and Gas Act and the Ministers of Energy and Northern Affairs hold the ultimate responsibility for the funds. Administratively, the Canadian Oil and Gas Lands Administration (COGLA) and the Northern Affairs Program of the Department of Indian Affairs and Northern Development (DIAND) manage the ESRF.

workshops / ESRF / COGLA / DIAND / government / legislation / regulatory agencies / DEMR

F 34 AN EVALUATION OF FUNDING OF PUBLIC PARTICIPATION IN THE BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL REVIEW.
Katherine A. Graham et al.
Kingston, Ontario : Institute of Local Government, Queens University, 1982. various pag.

333.823 16 Gra

Prepared for the Federal Environmental Assessment Review Office (FEARO), this study is an evaluation of the first round of funding of public participation in the Beaufort Sea Environmental Assessment Panel (BSEAP) review. The federal government undertook to fund public participation in the review of hydrocarbon development proposals in the Beaufort Sea on a "one-time" experimental basis, using money from an existing program in the Department of Indian Affairs and Northern Development (DIAND). The purpose of this report is to assess the extent to which participation in the BSEAP review has resulted in the outcomes intended by the funding program, and to assess the ways in which the procedures used in implementing the program affected those activities and outcomes.

FEARO / BSEAP / government / Beaufort Sea / northern energy development / financing / DIAND / environmental assessment panels

F 35 FEDERAL AND STATE STIPULATIONS GOVERNING THE TRANS-ALASKA PIPELINE SYSTEM.
Alyeska Pipeline Service Company, Bechtel and Fluor Alaska Inc.
s.l. : s.n., n.d. various pag.

330.979 Aly

This book reproduces copies of the following U.S. federal and state stipulations relating to the Trans-Alaska Pipeline System (TAPS): 1) Alaska State stipulations for the Right-of-Way Lease for the Trans-Alaska Pipeline; 2) Requirements of the Department of Defence Relating to Military Installations; 3) Requirements of the Federal Power Commission Relating to Power Sites; 4) Federal Stipulations for the Agreement and Grant of Right-of-Way for the Trans-Alaska Pipeline; and 5) Cooperative Agreement Between U.S. Department of the Interior and State of Alaska Regarding the Proposed Trans-Alaska Pipeline System.

Alyeska Pipeline Service Co. / TAPS / U.S.A. / U.S. Federal Power Commission / government / military aspects / regulations / pipelines

F 36 "Federal Energy R&D: Oil and Gas - Update '84."
Bryan Cook.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 88-92.

333.823 05 Arc 1984

Using a number of charts and diagrams, the author of this paper provides an update on the activities of the Panel on Energy Research and Development's (PERD) programs, from an administrative point of view. This panel is an interdepartmental federal committee, representing 23 departments and agencies, responsible for reviewing, co-ordinating and recommending on priorities and funding for federal energy research and development.

government / hydrocarbon production / natural gas / environmental monitoring / financing / ESRF / environmental impact / geotechnology / climatology / energy alternatives / meteorology / PERD / workshops

F 37 "The Federal Government's Regulatory Reform Program."
Wendy F. Porteous.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 152-159.

333.823 15 Fro

This paper outlines the Federal Government's objectives regarding regulatory reform and selected deregulation to reduce the burden of government. While not referring to hydrocarbon development specifically, this paper provides insight into the reasons behind the proposed deregulation and the impact it may have on the structures of government.

workshops / government / regulations / regulatory agencies

F 38 "Federal R&D Support to 'Environmental Forecasting'."
Dick Stoddart.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 92-96.

333.823 05 Arc 1984

This is an overview of the environmental forecasting projects supported by the federal government's Panel on Energy Research and Development (PERD). A table briefly sets out the amount of funding given and the number and types of research projects which received support in the 1984/85 program. Some program highlights are included as well as an appendix which lists, in detail, the objectives of the current projects being supported by the Panel.

government / climatology / meteorology / icebergs / ice, sea / communications / oceanography / Arctic / northern energy development / Beaufort Sea / radar systems / Northwest Passage / PERD / workshops

F 39 "The Government of the Northwest Territories as a 'New Regulator'."
J. Donihee.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. A43-A63.

333.823 05 Arc 1985

The author of this paper reviews the experience of the Government of the Northwest Territories (GNWT) with regard to resource development in that region. Policy initiatives, political development and land use planning are covered, and the paper includes a table which shows the evolutionary process of the government as a regulator.

Northwest Territories / regulatory agencies / regulations / government / legislation / Beaufort Sea / hydrocarbon production / exploration / land use / BSEARP / environmental assessment panels / energy policy / workshops / GNWT

F 40 GOVERNMENT REGULATORY CAPABILITY IN THE BEAUFORT.
Nepean Development Consultants.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, n.d. 67 pp.

343.077 2 Mil

This document examines the capability of the government to respond effectively to possible recommendations from the Beaufort Sea Environmental Assessment Panel (BSEAP), and to potential hydrocarbon developments in the Beaufort Sea region. The report includes a synopsis of the current development options for the Beaufort Sea, a review of existing regulatory frameworks and recommendations for correcting problems identified with regard to government regulatory capability. A bibliography is included.

government / BSEAP / hydrocarbon production / exploration / Beaufort Sea / regulations / regulatory agencies / legislation / environmental assessment / environmental impact / COGLA / DIAND / DEMR / DOE / DFO

F 41 GOVERNMENT SERVICE AND REGULATORY ORGANIZATION RE. OFFSHORE HYDROCARBON DEVELOPMENT.
B.R. LeDrew.
St. John's, Newfoundland : Centre for Cold Ocean Resources Engineering, Memorial University of Newfoundland, 1976. n.p.

351.823 880 25 LeD

This document identifies government agencies which perform a regulatory or service role with regard to offshore hydrocarbon development. The first section relates to the Province of Newfoundland only, while the second section deals with the federal government. Each entry provides the mailing address, minister's name or portfolio name, principal executive officers, responsibilities and other pertinent information. Two indexes are provided for each section (organization location and key word index) and there is a short bibliography.

government / Newfoundland / regulatory agencies / directories / drilling, offshore

F 42 GUIDELINES TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT ON THE PROPOSED RECONSTRUCTION OF THE HAINES ROAD-ALASKA HIGHWAY.
R.E. McLaren.
Ottawa, Ontario : Canada. Environmental Assessment Panel Office, 1976. 12 pp.

333.772 Can

The Haines Road/Alaska Highway Environmental Assessment Panel has prepared detailed guidelines for people wishing to submit an environmental impact statement on the proposed reconstruction of the Haines Road/Alaska Highway. In each of six sections, this guide details aspects which should be examined and discussed in order to meet the requirements of the panel.

environmental assessment panels / Alaska Highway / Haines Road / wildlife habitats / socio-economic impacts / waterfowl / environmental impact / terrain disturbance / climatology / fish / vegetation

F 43 "A History and Scientific Rationale of the Development of Guidelines to Cover the Use of Explosives in the Marine Environment in Canada and Other Nations."
D.G. Wright.
In PROCEEDINGS OF THE WORKSHOP ON EFFECTS OF EXPLOSIVES USE IN THE MARINE ENVIRONMENT. JANUARY 29 TO 31, 1985, HALIFAX.
edited by G.D. Greene, F.R. Engelhardt and R.J. Paterson.
Canada Oil and Gas Lands Administration. Environmental Protection Branch. Technical Report No. 5.
s.l. : Canada Oil and Gas Lands Administration, 1985. pp. 2-13.

622.17 Wor

This speaker contends that ever since the search for oil and gas reserves moved offshore in the late 1940s, there has been concern on the part of fisheries scientists about the impact of explosives, used for geophysical exploration, on marine fish and mammals. The paper focuses on the process between government and industry by which guidelines for the use of explosives in marine waters in northern Canada were established. As well, various other regulatory approaches, such as those used by the U.S.A., Great Britain and Norway, are discussed.

environmental impact / explosions / seismic exploration / fish / mammals, marine / regulations / government / U.S.A. / Great Britain / Norway / workshops

F 44 "Improving the Decision-Making Process: The Special Interest Group View."
Don J. Gamble.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 160-174.

333.823 15 Fro

The author of this paper represents the Canadian Arctic Resources Committee (CARC). The paper discusses the issue of making the planning, timeliness and methodology of the review and decision making process, for frontier oil and gas development, more responsive to the needs of those who must deal with these regulatory procedures.

workshops / northern energy development / government / regulatory agencies / environmental assessment panels / oil companies / EARP / NEB / DIAND / NEP

F 45 INITIAL DRAFT: ENVIRONMENTAL REQUIREMENTS FOR THE PIPELINE FOR THE TRANSMISSION OF NATURAL GAS FROM ALASKA ACROSS CANADA.
Northern Pipeline Agency.
Ottawa, Ontario : Canada. The Northern Pipeline Agency, 1978.
201 pp.

333.823 212 Can

This draft report provides a comprehensive list of environmental requirements for the construction of a natural gas pipeline from Prudhoe Bay to the Canada-U.S. border. The report covers design, construction, operation and maintenance, contingency planning and inspection and monitoring.

pipeline routes / natural gas / Alaska / Northern Pipeline Act / Northern Pipeline Agency / legislation / environmental assessment / pollution / pipeline construction / environmental impact / Prudhoe Bay, Alaska

F 46 LIABILITY FOR DRILLING- AND PRODUCTION-SOURCE OIL POLLUTION IN THE CANADIAN OFFSHORE.
Christian G. Yoder.
Canadian Institute of Resources Law. Working Paper 12.
Calgary, Alberta : The Canadian Institute of Resources Law. University of Calgary, 1986. 84 pp.

346.710 38 Yod

Oil spills arising from offshore drilling and production activities can cause property damage and generate cleanup costs. Accordingly, statutes have been enacted to regulate the rights of the various parties involved in such incidents. In Canada, three statutes apply to offshore spills emanating from drilling or production activities - the Oil and Gas Production and Conservation Act, the Arctic Waters Pollution Prevention Act and the Fisheries Act. This paper discusses the liability-imposing provisions of these statutes, as well as reviewing and discussing their political origins. The document includes an appendix containing selected references for proceedings of Parliament, the Standing Committees with respect to the statutes mentioned, and the Canada Shipping Act.

oil spills / drilling, offshore / operations / legal aspects / legislation / government / pollution, oil

F 47 "Major Frontier Project Approvals: Industry View."
Stan P. Mackay, Gerry T. Glazier, and Ian R. Smyth.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 128-137.

333.823 15 Fro

After a short briefing on the roles of the Canadian Petroleum Association (CPA), The Arctic Petroleum Operators' Association (APOA) and the Eastcoast Petroleum Operators' Association (EPOA), this paper reviews the current status of frontier development approval and clearance procedures, in the context of existing regulatory controls. Proposals for changes, and improvements, in existing procedures are included as well as a rationale in support of these proposed changes.

workshops / CPA / APOA / EPOA / regulations / regulatory agencies / legislation / environmental assessment panels / northern energy development / Beaufort Sea / Arctic Islands / Baffin Island, N.W.T. / DIAND / NEB / FEARO / DEMR

F 48 "Management and Regulation of Development in the Arctic Offshore."
M.E. Taschereau.
In ARCTIC OFFSHORE TECHNOLOGY CONFERENCE AND EXPOSITION PROCEEDINGS, CALGARY, ALBERTA, NOVEMBER 6-9, 1984.
Calgary, Alberta : Arctic Offshore Technology Conference, 1984. various pag.

665.502 8 Arc 1984

This paper discusses the origins and goals of the Canada Oil and Gas Lands Administration (COGLA), which manages and regulates all oil and gas activities on onshore areas north of 60° and offshore areas of the Hudson Bay, and the Atlantic, Pacific and Arctic oceans. Particular emphasis is placed on COGLA's role in the Arctic regions. The speaker examines the balance between the desire of the oil and gas industry to regulate itself and the political imperative which governs land management.

workshops / COGLA / regulations / regulatory agencies / Arctic / northern energy development / drilling, offshore / government / land management / environmental protection / Canadian content

F 49 "Marine Engineering R&D Under the Federal Energy Research and Development Plan."
Maurice Ruel.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 104-112.

333.823 05 Arc 1984

The author of this paper is the Chairman of the Marine Engineering Research and Development Committee of the federal government's Panel on Energy Research and Development (PERD). This paper identifies the main objective of the marine engineering program - the improvement, through research and development, of the operation and safety of marine hydrocarbon exploration and production systems in the Canada lands. Three areas are highlighted: environmental design criteria; safety technology for marine structures; and marine structures' engineering. The author outlines the work that has been done to date, as well as some projections for the future, in each area. Diagrams are used to elaborate on the information contained in the text.

government / drilling, offshore / safety measures / oil rigs / engineering / engineering, environmental / hydrocarbon production / exploration / Arctic / ice, sea / marine terminals / meteorology / oceanography / technology / workshops

F 50 NATIONAL ENERGY BOARD ORDER NO. OH-1-79, INTERVENTION TO THE NATIONAL ENERGY BOARD ON APPLICATIONS FOR PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT PIPELINE FACILITIES TO TRANSPORT ALASKAN NORTH SLOPE CRUDE OIL TO MARKETS IN THE LOWER 48 STATES. INTERVENTION AND SUBMISSION OF PANCANADIAN PETROLEUM LIMITED.
PanCanadian Petroleum Limited.
Calgary, Alberta : PanCanadian Petroleum Limited, 1979. various pag.

333.823 2 Pan(II)

This volume contains PanCanadian Petroleum Limited's notice of intervention and submission to the National Energy Board (NEB), relative to the Trans Mountain Pipe Line Co. Ltd. and Foothills Oil Pipe Line Ltd. (FOPL) application for authorization to construct an oil pipeline to transport Alaskan North Slope heavy crude oil to the northern United States. PanCanadian's concerns centre on the belief that North Slope heavy crude oil will prematurely displace Canadian heavy crude from its traditional export market.

PanCanadian Petroleum Limited / NEB / Trans Mountain Pipeline Co. Ltd. / FOPL / pipeline co. applications / North Slope, Alaska / exports / pipelines / government / Alaska

F 51 NATIONAL ENERGY BOARD ORDERS NO. OH-1-79 AND NO. PO-1-OH-1-79. WRITTEN DIRECT EVIDENCE OF PANCANADIAN PETROLEUM LIMITED.
PanCanadian Petroleum Limited.
Calgary, Alberta : PanCanadian Petroleum Limited, 1979. various pag.

333.823 2 Pan(I)

This volume contains the written direct evidence of PanCanadian Petroleum Limited in support of their intervention and submission to the National Energy Board (NEB) in the matter of the Trans Mountain Pipe Lines Co. Ltd. and Foothills Oil Pipe Lines Ltd. (FOPL) application to construct a pipeline to transport Alaskan crude oil to the United States.

PanCanadian Petroleum Limited / NEB / Trans Mountain Pipeline Co. Ltd. / FOPL / pipeline co. applications / pipelines / government / Alaska / North Slope, Alaska

F 52 "The National Perspective."
M. Taschereau.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985 . pp. A10-A18.

333.823 05 Arc 1985

This paper presents a perspective of the regulatory regime administered by the Canada Oil and Gas Lands Administration (COGLA). The writer stresses the importance of cooperation, between government and industry, in working towards the implementation of detailed technical regulations regarding hydrocarbon exploration and production.

COGLA / regulations / regulatory agencies / hydrocarbon production / legislation / energy policy / exploration / government / land use / Canadian content / workshops

F 53 1984-85 REVIEW. ARCTIC MARINE TRANSPORTATION RESEARCH AND DEVELOPMENT PROGRAM. TRANSPORT CANADA.
Canada. Bureau of Management Consulting.
s.l. : Canada. Bureau of Management Consulting, 1985. various pag.

351.877 5 BMC 1984/85

This review documents the achievements of the Transport Canada (TC) Arctic Marine Transportation Research and Development Program, and assesses future alternatives with a view to ensuring continuation of funding for the program from the Treasury Board. Six aspects of the program are examined in this review: 1) the structure of the program activities; 2) the implications of program results for the regulations under the Arctic Waters Pollution Prevention Act; 3) the improvements in government marine services that have resulted from the program; 4) industrial benefits; 5) future alternatives; and 6) management of the program. Much of the information is presented in tabular format.

TC / transportation, marine / technology / government / legislation / Arctic / financing / hydrography / navigation / communications / ice, sea / meteorology

F 54 "Northerners and the Environmental Studies Revolving Funds."
Yvon Dube.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983. pp. 32-36.

333.823 05 Arc 1983

This speaker explains that the Environmental Studies Revolving Funds (ESRF) were created under the Canada Oil and Gas Act. The northern ESRF is administered by the Department of Indian Affairs and Northern Development (DIAND), while the southern ESRF is administered by the Canada Oil and Gas Lands Administration (COGLA). The administrative organization for the northern ESRF is outlined, together with an explanation of its scope and objectives for the future.

workshops / ESRF / COGLA / legislation / DIAND / northern energy development / government / environmental protection

F 55 NORTHWEST TERRITORIES - CANADA RESOURCE MANAGEMENT AND REVENUE SHARING AGREEMENT - A PROPOSAL FOR SETTLEMENT DRAFT #5.
Northwest Territories. Department of Energy, Mines and Resources.
s.l. : Northwest Territories. Department of Energy, Mines and Resources, 1983. 63 pp.

330.971 92 NWT

This document is a preliminary draft which outlines the Government of the Northwest Territories' (GNWT) requirements in the area of resource management, and provides a rationale and formula for receiving an equitable share of resource related revenues from development. Although in draft form and, therefore, not representing the official position of the GNWT, this document was submitted to the Beaufort Sea Environmental Assessment Panel (BSEAP) for information and discussion purposes.

GNWT / BSEAP / revenues / Beaufort Sea / royalties / taxation / socio-economic impacts / mineral deposits / environmental protection / hydrocarbon production / coal / resource-leasing

F 56 NOTES FOR SEMINAR ON ORGANIZATIONAL REQUIREMENTS AND PROCEDURES WITH RESPECT TO IMPLEMENTATION OF TERMS AND CONDITIONS OF THE PERMIT AGREEMENT FOR CANADIAN SECTION OF THE ALCAN PIPELINE SYSTEM.
Einar Skinnarland.
s.l. : s.n., 1978. various pag.

330.971 Skin

This extensive volume pertains to the preparation of a permit agreement between Canada and the U.S. companies involved in the design, construction, operation and abandonment of the Canadian section of the Alcan Gas Pipeline System. The importance of such an agreement incorporating technical, socio-economic and environmental provisions, in addition to the normal terms and conditions of a certificate of public convenience and necessity, is emphasized. Administrative and organizational structures for implementation of an agreement are provided and the stipulations used successfully by the U.S. Department of the Interior for the Trans-Alaska Pipeline System (TAPS) are cited as an appropriate foundation for use in preparing the Alcan agreement.

Alcan Pipeline / socio-economic aspects / environmental protection / government / TAPS / pipelines

F 57 OIL AND GAS CONSERVATION ON CANADA LANDS.
Owen L. Anderson.
Canadian Institute of Resources Law. Working Paper 7.
Calgary, Alberta : Canadian Institute of Resources Law, University of Calgary, 1985. 122 pp.

346.046 823 And

This paper examines Canada's Oil and Gas Production and Conservation Act, which provides for the regulation of exploration, drilling, production, conservation, processing and transportation of oil and gas on Canada lands. The author provides a brief review of the history and rationale for petroleum conservation laws and examines the actual procedures for pursuing oil and gas conservation.

government / legislation / regulations / exploration / hydrocarbon production / natural gas / transportation / drilling / hydrocarbon reserves / environmental protection

F 58 OIL MARKETING: 1986. PROCEEDINGS OF THE STANDING SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES, JUNE 25, 1986. CHAIRMAN EARL A. HASTINGS.
Canada. Parliament. Senate. Standing Committee on Energy and Natural Resources.
Fifth Report of the Committee.
Ottawa, Ontario : Standing Senate Committee on Energy and Natural Resources, 1986. 50 pp.

333.823 217 Sta

This Committee's study of oil marketing in Canada was conducted from January to June 1986 - a period during which a decline of almost 60% in the price of oil took place. One of the motives for conducting this study was to help the public understand the new environment of Canadian oil supply, demand and trade and this is discussed here. Oil marketing practices are examined and the dramatic slow-down in frontier exploration activities, with the attendant socio-economic impacts, is addressed.

government / energy policy / marketing / socio-economic impacts / northern energy development / exploration / employment / energy requirements

F 59 OPERATIONAL PROCEDURES: BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL.
Beaufort Sea Environmental Assessment Panel.
s.l. : Beaufort Sea Environmental Assessment Panel, 1981. 9 pp.

333.823 21 BSEAP

The formally adopted operational procedures, governing the conduct of the Beaufort Sea Environmental Assessment Panel, are detailed in this short publication, which assists those wishing to participate in the Panel's activities. A brief list of definitions is included.

BSEAP / environmental assessment panels / Beaufort Sea

F 60 "Petroleum Land Policies - Alaska and Northern Canada."
A.R. Thompson.
In PROCEEDINGS OF A SYMPOSIUM ON THE IMPLICATIONS OF NORTHERN MINERAL RESOURCES MANAGEMENT FOR HUMAN DEVELOPMENT. NINETEENTH ALASKAN SCIENCE CONFERENCE, WHITEHORSE, YUKON, AUGUST 28-30, 1968.
Boreal Institute for Northern Studies. Occasional Publication Number 5.
Edmonton, Alberta : Boreal Institute, University of Alberta, 1968. pp. 1-36.

333.851 7 Sym

This author presents a comparison between the Alaskan federal and state petroleum leasing legislation and the Canada Oil and Gas Land regulations which govern the exploitation of petroleum resources in northern Canada.

conferences / government / legislation / northern energy development / Alaska / regulations / exploration

F 61 PETROLEUM OPERATIONS ON THE CANADIAN CONTINENTAL MARGIN: THE LEGAL ISSUES IN A MODERN PERSPECTIVE.
Ian Townsend Gault.
Canadian Continental Shelf Law 1: Working Paper 2.
Calgary, Alberta : Canadian Institute of Resources Law, University of Calgary, 1983. 120 pp.

343.71 Tow

Published by the Faculty of Law at the University of Calgary, this paper presents an overview of the primary legal issues which arise in the context of oil and gas exploration, development, and production in the Canadian offshore. Applicable international law is surveyed and problems arising from the conflicting uses of the seas are also discussed. Conceptual issues in Canadian law are examined, the impacts of the National Energy Program (NEP) and the Canada Oil and Gas Act are assessed and the structure and mandate of Canada Oil and Gas Lands Administration (COGLA) is outlined. The paper concludes with an outline of issues arising in connection with offshore installations and environmental issues.

NEP / COGLA / exploration / environmental impact / legislation / seas / Continental Shelf, Canada / oil rigs / drilling, offshore

F 62 "Pre-final Argument in Summary, Mackenzie Valley Pipeline Hearing."
R.A. Bradley.
In MACKENZIE VALLEY PIPELINE HEARING: PRE-FINAL ARGUMENTS SUBMITTED TO THE NATIONAL ENERGY BOARD BY VARIOUS GAS COMPANIES.
Toronto, Ontario : s.n., 1977. various pag.

330.971 92 Mack

This volume, prepared for submission to the National Energy Board (NEB), contains the author's arguments in support of his intervention in the Mackenzie Valley Pipeline hearing. The author outlines a conveyor system for transporting gas, and potentially other products, as opposed to the suggested pipeline.

Mackenzie Valley Gas Pipeline / NEB / public hearings / technology / pipelines / pipeline construction / pipeline financing

F 63 PRESENTATION BY THE GOVERNMENT OF YUKON TO THE SPECIAL COMMITTEE OF THE SENATE ON THE NORTHERN PIPELINE REGARDING HYDROCARBON DEVELOPMENTS NORTH OF 60°. SEPTEMBER 9, 1982.
Government of Yukon.
s.l. : s.n., 1982. 28 pp.

333.823 15 YTGp

In the context of ongoing work toward the production of hydrocarbons in northern Canada, the special Committee of the Senate on the Northern Pipeline, which is examining the transportation of petroleum and natural gas north of 60°, has had many briefs presented by oil companies, government departments and other interested parties. The purpose of this brief is to indicate that Yukoners feel they have a major role to play in Beaufort Sea hydrocarbon developments. As well, the Government of Yukon's commitment to support Yukoners in endeavours in the Beaufort Sea, and to ensure that Yukon benefits from development there, is expressed.

hydrocarbon production / transportation / Yukon Territory / government / pipelines / Dempster Highway / Klondike Highway / YTG

F 64 PROCEDURES FOR GENERAL AND COMMUNITY SESSIONS: AGENDA FOR GENERAL SESSIONS: SCHEDULE FOR PUBLIC SESSIONS: BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL.
Beaufort Sea Environmental Assessment Panel.
s.l. : Beaufort Sea Environmental Assessment Panel, 1983. various pag.

333.823 21 BSEAP(1)

In this guide for participants, procedures for the various sessions of the Beaufort Sea Environmental Assessment Panel (BSEAP) are given in detail. The volume includes the agendas and schedules for the panel's sessions conducted between September and November 1983.

BSEAP / environmental assessment panels / Beaufort Sea

F 65 A PROCESS FOR SITING HYDROCARBON FACILITIES ON THE CANADIAN ARCTIC COAST.
Rogers, Golden and Halpern.
Canada. Environmental Protection Service. Economic and Technical Review Report EPS 3-ES-83-1.
Ottawa, Ontario : Environment Canada, 1983. 118 pp.

622.182 82 Rog

This report was prepared for the Environmental Protection Service, Environment Canada and the Northern Environment Branch, Indian and Northern Affairs Canada. A facility siting process is presented which is intended to involve participants from industry, government and the public, in a type of advocacy approach to the choice of development sites. The process outlines a series of decisions to be made by these representatives, in an attempt to make the assumptions and decisions of siting both explicit and systematic. A glossary and list of references are included.

Beaufort Sea / Arctic / environmental impact / environmental assessment / DOE / hydrocarbon production / ecology / ecology, marine / socio-economic aspects / hydrology / climatology / hydrocarbon reserves / terrain classification / wildlife habitats / Continental Shelf, Canada

F 66 "Project Assessment: Position of DIAND."
Denis Watson.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 133-136.

333.823 05 Arc 1984

This speaker explains that, under its Northern Affairs Program, the Department of Indian Affairs and Northern Development (DIAND) is significantly involved in project assessment, with emphasis on environmental impact, technical factors, socio-economic factors, reserves and resources in the north. With specific reference to development in the Beaufort, Mackenzie and high Arctic Regions, several impact assessment studies are reviewed briefly before the speaker outlines the project assessment methodology and process prerequisites of DIAND. A summary of the DIAND Northern Affairs Program philosophy on project assessment concludes this paper.

DIAND / government / Mackenzie District, N.W.T. / Beaufort Sea / Arctic / environmental assessment panels / socio-economic aspects / native peoples / northern energy development / regulatory agencies / land use / workshops

F 67 "Rationale/Origin/Status of the Environmental Studies Revolving Funds."
M. Ruel.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983. pp. 29-32.

333.823 05 Arc 1983

In this short paper, the speaker explains that the Environmental Studies Revolving Funds (ESRF) were established to ensure that the cost of environmental studies was equitably shared by all those active in exploration or development activities on Canada lands. The basic criteria to be applied to all studies are outlined - the topic must be regional/national in scope, the study must be supplementary or complementary to ongoing government work and, lastly, it must be relevant to the decision-making process within the government and regulatory agencies.

workshops / ESRF / government / regulatory agencies / COGLA / environmental protection / exploration / northern energy development

F 68 RECORDS OF THE MACKENZIE VALLEY PIPELINE INQUIRY, RECORD GROUP 126.
Terry Cook.
Canada. Public Archives. Federal Archives Division. General Inventory Series.
Ottawa, Ontario : Canada. Public Archives, 1980. 5 pp.

PAM 1980-16

One of a series of inventories published by the Public Archives of Canada (PAC) to inform researchers, and the general public, of the extent of federal government records, this document is concerned with the records of the Mackenzie Valley Pipeline inquiry (Commissioner, Thomas R. Berger). The inventory provides an administrative outline of the inquiry, a note on access to the materials in the collection and a description of the records (which consist of printed materials, maps, slides, videotapes, and photographs).

Mackenzie Valley Gas Pipeline / Berger Report / pipelines / public hearings / PAC / socio-economic aspects / land claims / native peoples / environmental impact / government

F 69 "Regional Perspectives on Production Impact: Northwest Territories."
Dan Billing.
In PROCEEDINGS OF THE NINTH ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., MAY 4-7, 1980.
Arctic Petroleum Operators' Association et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1980. pp. 279-287.

333.823 05 Arc 1980

Local government trends in the Northwest Territories are reviewed in this paper. The effects on local governments of northern energy development, and changes being considered, are discussed. Land claim issues, socio-economic impacts and native peoples' involvement in local government affairs - including a shift away from southern-style government - are each examined in this presentation.

government / native peoples / land claims / Northwest Territories / northern energy development / socio-economic impacts / Beaufort Sea / communities

F 70 "Regulation of High Arctic Development."
A.R. Lucas, D. MacLeod and R.S. Miller.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee, 1979. pp. 99-176.

330.971 9 Mar

This paper examines federal government regulations in terms of high arctic development and marine transportation. Government policies, specific legislative requirements, and the agencies which have regulatory responsibility are reviewed. Gaps and uncertainties in regulations are identified and analyzed.

conferences / CARC / legislation / government / regulations / regulatory agencies / transportation, marine / Arctic

F 71 "Regulations [Offshore Safety].
M.D. Crucefix.
In TWELFTH ANNUAL ARCTIC ENVIRONMENTAL WORKSHOP: ISSUES OF THE 80'S, FAIRMONT, B.C., MAY 8-11, 1983 (CANADIAN PETROLEUM ASSOCIATION (CPA), EASTCOAST PETROLEUM OPERATORS' ASSOCIATION (EPOA) AND ARCTIC PETROLEUM OPERATORS' ASSOCIATION (APOA)).
Calgary, Alberta : Canadian Petroleum Association, 1983. pp. 78-83.

333.823 05 Arc 1983

This is a brief overview of the report of the East Coast Petroleum Operators' Association (EPOA) and Arctic Petroleum Operators' Association (APOA) Offshore Safety Task Force. The subject report identifies present and proposed marine-related safety regulations and legislation applicable to offshore operations, and identifies the responsible government agency or certifying association. The legislation and regulations are then reviewed to determine conflicts or overlaps, effectiveness, and applicability to the various types of offshore operations.

workshops / EPOA / APOA / safety measures / government / regulatory agencies / regulations / legislation / drilling, offshore / fire / evacuation / safety equipment

F 72 REGULATORY AND ENVIRONMENTAL ISSUES ASSOCIATED WITH ARCTIC MARINE TRANSPORTATION.
D. Bruchet and M. Robertson.
Calgary, Alberta : Petro-Canada, 1983. 15 pp.

343.710 962 Bru

This paper presents a summary of the Canadian north (demography, education, renewable and non-renewable resources), federal policies for northern development, and the current regulatory controls over arctic marine transportation in Canada. Specific references are made to the Arctic Pilot Project, which involves drawing gas from the large natural gas reserves at Drake Point on Melville Island, overland transportation of the gas by pipeline to Bridport Inlet, liquefaction at that site and removal of the gas to southern markets using liquefied natural gas (LNG) carriers. Environmental considerations, particularly interactions between ships and marine mammals, are discussed in terms of the role of the Environmental Assessment and Review Panel (EARP), the National Energy Board (NEB), the Department of Indian Affairs and Northern Development (DIAND) and other government bodies.

regulations / legislation / transportation, marine / Arctic / tankers / LNG / Arctic Pilot Project / government / Drake Point, N.W.T. / Melville Island, N.W.T. / ice-breaking vessels / pollution / mammals, marine / environmental impact / ice, sea / EARP / NEB / DIAND

F 73 "Regulatory Approval-Self Sufficiency: Are They Compatible?"
Henri C. Rothschild.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 210-213.

333.823 15 Fro

The Department of Energy, Mines and Resources (DEMR), and specifically DEMR's Office of Environmental Affairs', role in contributing to the technical thoroughness of environmental assessment and reviews for projects related to energy development, is outlined in this paper. The speaker reports that regulatory interest in frontier oil and gas development requires the involvement of agencies at two or three levels of government, and seven or more agencies within the federal government alone. However, while recognizing that opportunities for streamlining exist, the author suggests that there are limits to what can be done in that area without compromising responsible decision making.

workshops / environmental assessment / regulatory agencies / government / northern energy development

F 74 REPORT OF TASK FORCE ON BEAUFORT SEA DEVELOPMENTS.
Olav H. Loken.
s.l. : Task Force on Beaufort Sea Developments, 1981. various pag.

333.823 1 Lok

This Task Force examines how the federal government could best respond to the anticipated hydrocarbon developments in the Beaufort Sea area. The report provides a current (1981) situation report, a review of the preparedness of government and industry, and recommendations submitted to the Senior Policy Committee, Northern Development Projects.

Beaufort Sea / government / regional planning / hydrocarbon production / Beaufort Sea Task Force

F 75 REPORT OF THE YUKON NORTH SLOPE PROJECT REVIEW GROUP.
Gunther Abrahamson.
s.l. : Canada. Department of Indian Affairs and Northern Development, 1983. 3 v.

333.731 5 Nor

The Yukon North Slope Project Review Group, composed of representatives from the Council for Yukon Indians (CYI), the Committee for Original Peoples' Entitlement (COPE), and the Yukon Territorial Government (YTG), was established in 1983 by the Department of Indian Affairs and Northern Development (DIAND) to advise on two applications for industrial development on Yukon's North Slope. CYI and COPE subsequently recommended that the applications be denied, while YTG felt that both should be approved. (The applications were indeed rejected in November 1983.) This report, compiled by the chairman of the review group (a non-voting representative of DIAND), documents the process followed by the group and the reasoning behind its recommendations. Volume one contains a summary report, including the submitted written recommendations; volume two provides a general account of the review group's public meetings held in Whitehorse and Ottawa; and volume three reproduces the prepared statements and written submissions presented to the review group. The scope of this report is wide and considers the social, economic, and environmental aspects of the proposed developments.

Yukon North Slope Project Review Group / North Slope, Yukon / CYI / COPE / YTG / DIAND / King Point, Yukon / Stokes Point, Yukon / land claims / native peoples / public hearings / government / socio-economic impacts / national parks / environmental impact / marine support base

F 76 RESEARCH REPORT ON ATTITUDES TO NATIONAL ENERGY BOARD REFORM.
Jamie Benidickson.
Canadian Arctic Resources Committee Working Paper No. 2.
Ottawa, Ontario : Canadian Arctic Resources Committee, 1980.
62 pp.

351.823 Ben

This report, which was prepared for the Canadian Arctic Resources Committee (CARC), focuses on the role of the National Energy Board (NEB) as a principal agency for public decision-making in the Canadian energy sector. The author analyses comments and opinions on the NEB derived from interviews and literature.

CARC / NEB / government / legislation / regulations / regulatory agencies

F 77 RESOURCES AND THE ENVIRONMENT: POLICY PERSPECTIVES FOR CANADA.
edited by O.P. Dwivedi.
Toronto, Ontario : McClelland and Stewart, 1980. 346 pp.

333.715 Res

The major purpose of this book is to analyze the public policy process in Canada as it relates to natural resources management and related environmental considerations. Policy overviews and selected case studies are presented by 16 authors, on topics including coastal zone management, pipelines, and pollution. A comprehensive index is provided.

government / environmental protection / environmental impact / coastal zone management / pollution, oil / pollution, industrial / pipelines / regulatory agencies / northern energy development / energy policy

F 78 "A Review of the Offshore Environmental Legislation and Regulatory Processes."
Murray J. Morison.
In PROCEEDINGS OF THE SEVENTH ARCTIC ENVIRONMENTAL WORKSHOP, FAIRMONT, B.C., APRIL 12-15, 1978.
Arctic Petroleum Operators' Association (APOA) and the Canadian Petroleum Association (CPA).
Toronto, Ontario : The Institute of Environmental Studies, University of Toronto, 1978. pp. 118-132.

333.823 05 Arc 1978

This paper presents a review of the legislation and governmental procedures dealing with offshore drilling north of the 60th parallel. Legislation covering oil and gas exploration and environmental considerations is summarized. The regulatory mechanisms are identified and explained and a flow chart is included which illustrates the Department of Indian Affairs and Northern Development (DIAND) Drilling Program and Drilling Authorities Procedure. A panel discussion, which followed presentation of this paper, is summarized and conclusions reached by the panel are included.

DIAND / legislation / government / regulatory agencies / regulations / natural gas / northern energy development / drilling, offshore / environmental assessment / Beaufort Sea / Arctic / APOA / CPA

F 79 "The Role of Assessment Agencies, Their Relationship to Each Other and Project Planning."
Ray Robinson.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 125-126.

333.823 05 Arc 1984

This paper explains that the federal government's Environmental Assessment and Review Process (EARP) is funded on the premise that the federal government must consider the potential environmental consequences of its actions. This premise applies to all activities involving federal land or money. There follows a description of how the EARP can work successfully and a specific example is used - the Venture Environmental Assessment Panel review of Mobil's Sable Island proposal (production of gas and condensates from fixed platforms, with a single phase pipeline to shore). Government approval and regulatory procedures are discussed, as well as the public review process.

government / environmental assessment panels / EARP / environmental assessment / Sable Island, N.S. / Venture Gas Field / regulatory agencies / regulations / natural gas / condensates / pipelines / oil rigs / drilling, offshore / Mobil / public hearings / hydrocarbon production / workshops

F 80 "The Role of the National Energy Board in the Review, Assessment and Regulation of Major Hydrocarbon Projects."
John Jenkins.
In PROCEEDINGS OF THE THIRTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, FAIRMONT, B.C., MAY 6-9, 1984.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1984. pp. 126-129.

333.823 05 Arc 1984

This paper outlines the role of the National Energy Board (NEB) in the process of determining whether major hydrocarbon projects, under federal jurisdiction, should proceed, as well as its subsequent role in regulating the planning, construction, and operation of those projects that are approved. In addition, the relationship between the NEB and other relevant government departments and agencies is outlined. The author explains the organizational structure of the NEB and reviews the National Energy Board Act, which guides and directs the Board. After detailing which factors are considered during the review process, the author concludes by discussing the implications of the decision-making and regulatory processes for the project planning cycle of industry proponents.

government / NEB / legislation / regulatory agencies / regulations / hydrocarbon production / COGLA / DIAND / FEARO / EARP / public hearings / financing / socio-economic aspects / Canadian content / oil companies / natural gas / workshops

F 81 "Science Policy: The Industrial Dilemma."
W.J.H. Stuart.
In MARINE TRANSPORTATION AND HIGH ARCTIC DEVELOPMENT: POLICY FRAMEWORK AND PRIORITIES: SYMPOSIUM PROCEEDINGS, MONTEBELLO, QUEBEC MARCH 21-23, 1979.
s.l. : Canadian Arctic Resources Committee, 1979. pp. 41-44.

330.971 9 Mar

This author identifies the scientific disciplines which may be involved when an oil company embarks upon an arctic resource development project, including biology, geophysics, hydrography, marine science, ecology, bathymetry, social sciences and medicine. The dilemma involved in unearthing the scientific data, which have been previously gathered, leads the author to a discussion of federal government policy regarding science, which is the main emphasis of this paper. Among the recommendations the author makes in concluding, is the establishment of a central index of essential arctic baseline data, the formulation of a long term plan for the gathering of such data, and close exchange with other nations sharing an interest in the Arctic.

conferences / Arctic / government / science / hydrography / bathymetry / data bases / northern energy development / CARC

F 82 "Some Thoughts on Implementing Beaufort Sea Panel Recommendations."
J. Tener.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. B22-B29.

333.823 05 Arc 1985

The author of this paper is a past Chairman of the Beaufort Sea Environmental Assessment Review Panel (BSEARP). The paper provides a background to the work of the panel and some of the recommendations it made. As well, the implementation of these recommendations is addressed, specifically the need for co-operation between governments, industry, universities and individuals to achieve success in this area.

northern energy development / BSEARP / environmental assessment / oil spills / government / socio-economic aspects / Beaufort Sea / hydrocarbon production / ecology / Mackenzie Valley, N.W.T. / Dome / Esso / Gulf / pipelines / tankers / Northwest Passage / environmental assessment panels / workshops

F 83 "Streamlining Frontier Development Approvals: The Government View(I)."
Ewan R. Cotterill.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 197-202.

333.823 15 Fro

Three assumptions provide the basis for this paper. The first is that there will continue to be a great deal of interest and concern, nationally and regionally, with regard to environmental protection (including socio-economic impact) in major development projects. The second is that interest and concern will focus to a large extent on the activities in the frontier areas of Canada, and the third is that the public will demand increased government and non-government involvement in the early planning stages of major developments. The speaker expands on these assumptions and the government's role in the matters, and also suggests that it is the planning process which requires streamlining rather than the approval process.

workshops / government / environmental protection / socio-economic impacts / regulations / northern energy development / public hearings / regulatory agencies

F 84 "Streamlining Frontier Development Approvals: The Government View (II)."
G. Neil Faulkner.
In FRONTIER OIL AND GAS DEVELOPMENT: THE DECADE AHEAD. PROCEEDINGS OF THE TENTH ENVIRONMENTAL WORKSHOP, MONTEBELLO, QUEBEC, APRIL 28 - MAY 1, 1981.
The Arctic Petroleum Operators' Association (APOA) et al.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1981. pp. 202-209.

333.823 15 Fro

The author of this paper is the Assistant Deputy Minister, Northern Affairs Program, Department of Indian Affairs and Northern Development (DIAND). DIAND is responsible for non-renewable resource management and for coordination of federal activities in the north, where much of the frontier development takes place. This paper addresses the current context in which DIAND is operating - political, economic and the land claim situation. The author identifies specific problems and issues regarding the approval process - a need to update the northern policy framework and legislative gaps and overlaps, for example - and concludes by outlining how he proposes to alleviate the problems as presently perceived.

workshops / DIAND / northern energy development / government / legislation / land claims / socio-economic aspects

F 85 A STUDY OF OIL SPILL CLEANUP AND DAMAGE COSTS RELATING TO VARIOUS WELL BLOWOUT SCENARIOS ON CANADA LANDS.
S.L. Ross Environmental Research Limited.
Canada. Environmental Protection Branch. Canada Oil and Gas Lands Administration. Technical Report No. 6.
s.l. : Canada. Environmental Protection Branch, 1985. 96 pp.

628.168 33 Ross

This study assesses the cost of cleanup operations and damages associated with uncontrolled oil well blowouts, occurring on Canada lands, as an indication of the level of financial security appropriate as a contingency against such expenditures. (The Oil and Gas Production and Conservation Act requires drilling operators to submit to the Canadian Oil and Gas Lands Administration (COGLA), proof of financial responsibility in respect to their liability for oil spill and debris-related damages.) To calculate costs, historical oil spill damage and cleanup cost trends are presented, based on information from 62 oil spills which occurred between 1967 and 1984.

oil spills / financing / legislation / government / COGLA / oil spill countermeasures / drilling / drilling, offshore / regulations / blowouts

F 86 SUBMISSION BEFORE THE NATIONAL ENERGY BOARD IN THE MATTER OF THE MACKENZIE VALLEY PIPELINE HEARING PHASES 4B, 4C AND 4D.
Alberta and Southern Gas Co. Ltd.
s.l. : Alberta and Southern Gas Co. Ltd., 1977. 9 pp.

330.971 92 Alb

In this document, Alberta and Southern Gas Co. Ltd. submits its estimate of its own gas supply, which is based on reserves under contract in nearly 300 pools in 73 fields located in Alberta.

NEB / Alberta and Southern Gas Co. Ltd. / Alberta / hydrocarbon reserves / natural gas / Mackenzie Valley Gas Pipeline

F 87 SUPPLEMENTARY MATERIALS TO THE APPLICATION TO THE NATIONAL ENERGY BOARD FOR A LICENCE FOR THE EXPORT OF GAS UNDER PART VI OF THE NATIONAL ENERGY BOARD ACT.
Columbia Gas Development of Canada Ltd.
[Calgary, Alberta] : s.n., 1979. 31 pp.

330.971 CGDCs

This volume contains documents supplementary to Columbia Gas Development of Canada Ltd.'s application to the National Energy Board (NEB) for a gas export licence. The supplementary materials include a gas sales contract between the applicant and the Columbia Gas Transmission Corporation and a pro-forma statement of revenue and expenses. The gas in question is from the Kotaneelee field in the Yukon Territory.

Columbia Gas Development of Canada / Columbia Gas Transmission Corporation / natural gas / exports / NEB / Yukon Territory / Kotaneelee Field

F 88 "A Technology-based Industry and the Canadian Government: Offshore Oil and Gas as a Case Study."
Hardy Associates (1978) Ltd.
Dartmouth, Nova Scotia : Hardy Associates (1978) Ltd., 1985. various pag.

351.823 88 Har

Nearly 300 federal government programs, administered through 17 federal government departments, interact with the offshore oil and gas industry in ways that have bearing on the industry's technological and scientific requirements. This extensive case study examines these programs, and the related interaction between government personnel and industry personnel, as well as reviewing the industry's perception of the role and value of the programs.

government / employment / exports / technology / oil companies / regulations / taxation

F 89 "Updating the Canadian Ice Class Rules Through Research and Development."
J. Grinstead.
In INTERNATIONAL POLAR TRANSPORTATION CONFERENCE, VANCOUVER, B.C. 1986. [Vol. 1].
edited by Aileen Cassidy and David Dickins.
Vancouver, British Columbia : DF Dickins Associates, 1986.
pp. 66-103.

380.509 11 IPTC

The Arctic research program of the Canadian Coast Guard, relative to the updating of the Arctic Shipping Pollution Prevention Regulations, is discussed in this paper. The political, social, economic and legislative background to the original regulations is presented and a number of factors leading to the current review process are examined. Transport Canada's (TC) role in the Arctic marine research and development program is presented and some thoughts on future research directions are given. A list of references is included.

conferences / Arctic / Canadian Coast Guard / TC / pollution / regulations / socio-economic aspects / legislation / shipping / government / technology / engineering / transportation, marine

F 90 VENTURE DEVELOPMENT PROJECT. REPORT OF THE SABLE ISLAND ENVIRONMENTAL ASSESSMENT PANEL.
P. Paradine and L. Peddle.
s.l. : Canada: Ministry of Supply and Services and Province of Nova Scotia, 1983. 55 pp.

333.823 163 45 Sab

This report conveys the findings of an Environmental Assessment Panel (EAP) review of a proposal to produce natural gas and condensates from the Venture Field, near Sable Island, off the coast of Nova Scotia. Conclusions on major issues raised during the review process are reported as well as recommendations to the federal and Nova Scotian Ministers of the Environment. A list of references is included.

natural gas / environmental assessment panels / Sable Island, N.S. / Venture Gas Field / environmental impact / EAP

F 91 "Why Assessments are Needed."
A.J. Hanson.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. B2-B10.

333.823 05 Arc 1985

After briefly reviewing the history of the development of environmental assessment, the author of this paper notes that, during the years 1970-1980, science-based direction dominated the process. However, the author states that there is now far greater acceptance of the need for socially-based and institutionally-based direction as well. Some selected concerns, which the Canadian Environmental Assessment Research Council (CEARC) will likely be considering, are reviewed and the author includes a short list of references.

environmental assessment / EIS / environmental monitoring / environmental impact / environmental assessment panels / socio-economic aspects / government / ecology / energy policy / CEARC / workshops

F 92 WRITTEN SUBMISSIONS, POSITION PAPERS, AND LETTERS TO THE BEAUFORT SEA ENVIRONMENTAL ASSESSMENT PANEL.
Beaufort Sea Environmental Assessment Panel.
s.l. : s.n., 1982-84. various pag.

333.823 1 Bea

This collection of material is comprised of photocopies of various submissions to the Beaufort Sea Environmental Assessment Panel (BSEAP), from 1982-1984. Correspondence, position papers, agendas, procedures and schedules are included in the collection.

Whitehorse, Yukon / Yellowknife, N.W.T. / Inuvik, N.W.T. / Calgary, Alberta / Ottawa, Ontario / Resolute Bay, N.W.T. / DIAND / environmental assessment / environmental assessment panels / Beaufort Sea / BSEAP

PIPELINE COMPANY APPLICATIONS

Foothills Pipe Lines (South Yukon) Limited

G 1 FINAL REPORT: CONSERVATION MITIGATION, ALASKA HIGHWAY GAS PIPELINE PROJECT, FOOTHILLS PIPE LINES (SOUTH YUKON) LIMITED.
Jonathan Damp and S. Van Dyke.
Calgary, Alberta : Lifeways of Canada Ltd., 1982. 151 pp.

930.102 Dam

This document reports the results of a conservation program involving prehistoric sites identified during an archaeological reconnaissance of the Alaska Highway Gas Pipeline Project alignment. Of 23 prehistoric sites identified, nine were recommended for further testing and the findings are reported here in considerable detail. Numerous maps, charts and photographs are included. This report was prepared for Foothills Pipe Lines (South Yukon) Limited, of Whitehorse.

AHGP / environmental protection / archaeology / FPL(SY) / environmental impact / pipeline routes / Kluane Lake, Yukon / Ibex Valley, Yukon / Koidern, Yukon / Marshall Creek, Yukon / Mendenhall Creek, Yukon

Foothills Pipe Lines (Yukon) Limited

G 2 APPLICATION OF FOOTHILLS PIPE LINES (YUKON) LTD. FOR A GRANT OF INTERESTS IN LANDS IN THE YUKON TERRITORY.
Foothills Pipe Lines (Yukon) Ltd.
s.l. : Foothills Pipe Lines (Yukon) Ltd., 1976. 11 pp.

330.971 FPL(Y)

This is an application by Foothills Pipe Lines (Yukon) Ltd. (FPL(Y)), to the Department of Indian Affairs and Northern Development (DIAND), for a grant of interests in territorial lands in the matter of the construction and operation of a natural gas pipeline along the southern boundary of the Yukon Territory to carry gas to markets south of the 49th parallel.

FPL(Y) / DIAND / pipelines / Yukon Territory / pipeline co. applications / pipeline construction

GENERAL AND MISCELLANEOUS

H 1 ALASKA HIGHWAY REALIGNMENT KM 1558 TO KM 1574 (CHAMPAGNE AREA): ARCHAEOLOGICAL SURVEY.
Canada. Public Works Canada Project No. 013096.
Edmonton, Alberta : s.n., 1984. 30 pp.

333.72 Gre

This document provides an overview of a records and field study, which was conducted on sections of a proposed realignment of the Alaska Highway in the Yukon, to identify and evaluate heritage resources which would be affected by highway upgrading. Four prehistoric sites are identified, of which two contain cultural deposits of value where salvage archaeological work is recommended. This document is illustrated, a list of references is provided and site catalogues are appended.

archaeology / Alaska Highway / Yukon Territory, Southwest / Champagne, Yukon / road construction

H 2 ANNOTATED BIBLIOGRAPHY OF PUBLICATIONS BASED ON RESEARCH SUPPORTED BY THE NORTHERN SCIENTIFIC TRAINING PROGRAM 1983.
Northern Policy and Coordination Branch, Department of Indian Affairs and Northern Development.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1985. 182 pp.

500.971 072 Can

This annotated bibliography comprises 276 references to scientific papers, seminar or conference presentations and theses based on projects supported by the Department of Indian Affairs and Northern Development's (DIAND) northern scientific training program. Since universities receive block funding that they then distribute among student projects, the first section of this bibliography reflects this procedure and the entries are listed by university name and then alphabetically by author surname. Indexes by author, discipline and geographic focus complete this bibliography.

bibliographies & indices / DIAND / training / archaeology / botany / engineering / ecology / geology / geography / history / zoology

H 3 ARCHAEOLOGICAL INVENTORY, ALASKA HIGHWAY PIPELINE PROJECT, YUKON TERRITORY: ALIGNMENT STUDIES 1981.
Stan Van Dyke.
Calgary, Alberta : Lifeways of Canada Limited, 1981. 78 pp.

333.823 315 3 Van

Prepared for Foothills Pipe Lines (South Yukon) Ltd. (FPL(SY)), this document reports the results of a 1981 archaeological survey, carried out as part of a detailed impact assessment, of the preferred alignment (at 1980) of the Alaska Highway Gas Pipeline (AHGP) route in the Yukon Territory and including a small portion of British Columbia. The objectives of this survey are to locate and assess archaeological resources, lying on the right-of-way, which could be potentially impaired or destroyed by activities associated with the construction of the proposed pipeline. The document includes a summary and assessment of resources located as well as recommendations for further study. Photographs and maps illustrate the report and a list of references is provided.

archaeology / pipeline routes / pipeline construction / FPL(SY) / AHGP / Yukon Territory / British Columbia

H 4 "Arctic Petroleum Operators' Association."
Gordon Jones.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. C12 - C15.

333.823 05 Arc 1985

The organization and role of the Arctic Petroleum Operators' Association (APOA) is outlined in this paper.

Arctic / natural gas / northern energy development / government / environmental assessment / oil spill research / oil detection systems / safety measures / land use / socio-economic aspects / drilling, offshore / APOA / workshops

H 5 BIBLIOGRAPHY AND INDEX OF INVENTORY AND ANALYSIS INFORMATION ON THE NORTH SLOPE BOROUGH COASTAL RESOURCE DISTRICT, CANNING RIVER-KUPARUK RIVER.
Information Services, Arctic Environmental Information and Data Center.
Anchorage, Alaska : University of Alaska, 1979. 2 microfiche.

MF AEIDC

This bibliography and index was compiled to assist the North Slope Borough, Alaska, in complying with inventory and analysis requirements of Alaska's Coastal Management Act. The material is divided into five sections. Section I is the master bibliography, which is split into six chapters - habitats; cultural resources; land and water uses; land and resource ownership and management; historic, prehistoric and archaeological resources; and resource analysis. Section II is an author index, Section III a geographic index, Section IV a keyword index and Section V is a source location guide.

Canning River / Kuparuk River / archaeology / history / bibliographies & indices / coastal zone management / AEIDC / North Slope, Alaska / land use / land management / water management / social conditions / Beaufort Sea, Alaskan / ecology / ecology, marine / Alaska / environmental assessment / Gulf of Alaska / wildlife habitats

H 6 CANADIAN MARITIME LAW AND THE OFFSHORE: A PRIMER.
W. Wylie Spicer.
Canadian Institute of Resources Law. Working Paper 6.
Calgary, Alberta : Canadian Institute of Resources Law, University of Calgary, 1984. 65 pp.

343.710 962 Spi

This paper reviews those principles of admiralty law that pertain particularly to oil and gas activities offshore Canada. The basic nature of Canadian maritime law is examined, with an explanation of the role and jurisdiction of the Federal Court of Canada. The issue of whether, and for what purposes, an oil rig is a ship is discussed, as well as drilling contracts and the roles applying to salvage and towing operations. The paper concludes with a review of the choice of law and forum clauses found in offshore agreements, and their legal ramifications.

legislation / oil rigs / drilling, offshore / maritime law

H 7 "Canadian Petroleum Association."
I.R. Smyth.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. C1 - C6.

333.823 05 Arc 1985

This article describes the organization and role of the Canadian Petroleum Association (CPA).

CPA / hydrocarbon production / pipelines / natural gas / environmental assessment / government / NEP / drilling / oil spill countermeasures / safety measures / workshops

H 8 "Canadian Petroleum Association-Offshore Operations Division."
C.B. Virtue.
In PROCEEDINGS OF THE FOURTEENTH ANNUAL APOA/CPA-OOD WORKSHOP, "MAKING THE FRONTIERS CONVENTIONAL", FAIRMONT, B.C., MAY 12-15, 1985.
Calgary, Alberta : Arctic Petroleum Operators' Association (APOA)/Canadian Petroleum Association-Offshore Operators' Division (CPA-OOD), 1985. pp. C7 - C11.

333.823 05 Arc 1985

This paper describes the organization and role of the Canadian Petroleum Association-Offshore Operations Division (CPA-OOD).

drilling, offshore / CPA-OOD / oil spill research / oil detection systems / environmental assessment / socio-economic aspects / ecology / hydrocarbon production / natural gas / workshops

H 9 FOOTHILLS PIPE LINES LTD. ALCAN PROJECT-YUKON ROUTE. APPENDIX 11: ROUTE PHOTOGRAPHS.
Canuck Engineering Ltd.
Calgary, Alberta : Canuck Engineering Ltd., 1976. n.p.

330.971 AHPI Ex. 26

This volume contains reproductions of colour photographs taken on a reconnaissance flight over the Foothills Pipe Lines Ltd. (FPL) Alcan Project-Yukon route. A complete log of the photographs is included.

FPL / Alcan Pipeline / Yukon Territory / pipeline routes

H 10 A MICROCOMPUTER ENVIRONMENTAL DATA BASE.
E. Strong.
s.l. : Petro-Canada Exploration Ltd., 1980. 1 microfiche.

MF OLABS

This report presents the rationale, objectives, methodology and present status and application of the Microcomputer Environmental Data Base. In addition, a brief section outlines some ideas for future improvements to the system. The development of this data base was funded by several major oil companies. Petro-Canada facilitated the project which was undertaken specifically in support of oil spill response, contingency planning and environmental assessment.

oil spill countermeasures / environmental assessment / Petro-Canada / data bases / oil spill research

H 11 STRATEGY AND THE ARCTIC.
edited by R.B. Byers and Michael Slack.
Canadian Institute of Strategic Studies. Polaris Papers 4.
Toronto, Ontario : Canadian Institute of Strategic Studies, 1986.
116 pp.

355.430 5 Str

Energy development, claims negotiation, and political evolution are changing Canada's north and its relationship with the rest of the country, it is reported in this publication. The volume's theme is the need to assess the military-strategic northern environment within the broad geostrategic (the combination of strategic factors and such factors as geography and demography), economic, and political context of both the Canadian Arctic and the circumpolar region. The current military-strategic environment is discussed in relation to the future strategic importance of the Arctic from both the Canadian and the international perspective.

northern energy development / land claims / land settlement / Arctic / military aspects / international relations / geography / demography / government / socio-economic aspects

SERIES

I 1	BAFFIN ISLAND OIL SPILL PROJECT. WORKING REPORT SERIES. [Individual volumes have different publishers and are catalogued separately. Please see full entries under appropriate citation numbers in other categories.] 7 vol. 628.168 33 BIOS
80-3, 81-3, 82-3, 83-3	Macrobenthos: Study Results 1980-1983, by W.E. Cross, et al. See: A279
83-1	Chemistry 1: Field Sampling and Measurements - 1983 Study Results, by B. Humphrey. See: A260
83-2	Chemistry 2: Analytical Biochemistry - 1983 Study Results, by P.D. Boehm, et al. See: A261
83-7	Baffin Island Oil Spill Project. Working Report Series 83-7: Toxicology, by Baffin Island Oil Spill Project. See: A252

I 2 BEAUFORT EIS REFERENCE WORKS 1982.
[Individual volumes have different publishers and are catalogued separately. Please see full entries under appropriate citation numbers in other categories.]
33 vol.

Aerial Surveys of Bowhead Whales and Other Marine Mammals,
by Wayne E. Renaud and Rolph A. Davis. See: A207

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by S. De Paoli, T.B. Morrison and R.W. Marcellus.
See: A146

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See: A210

A Baseline Chemical Survey at Kilannak A-77 July 1979,
by David J. Thomas. See: A111

A Baseline Chemical Survey at Tarsiut A-25,
by David J. Thomas. See: A112

Beaufort Sea Ice Movement from RAMS Buoy Data Analysis 1977-1978. Volume 1,
by D. McGonigal. See: A151

Beaufort Sea Ice Stereo Photo Analysis 1976-77,
by B.D. Wright and D.L. Schwab. See: A152

A Benthic Survey of a Potential Gravel Deposit Near Banks Island, N.W.T.,
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by Ian Stirling, M.C.S. Kingsley and Wendy Calvert.
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by Dome Petroleum Ltd. See: A267

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by Hardy Associates (1978) Limited. See: A335

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Measurements of Wind, Ice and Surface Layer Drift in Viscount Melville Sound, Summer 1980. Volume 2 - Data Appendices,
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The Oil Sinking Ability of Mackenzie River Borne Suspended Sediments in the Beaufort Sea: A Literature Review,
by F.F. Slaney & Company Limited. See: A288

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by Woodward Clyde Consultants. See: A77

Revegetation and Impact Assessment Studies in the Mackenzie River Region,
by Hardy Associates (1978) Limited. See: A363

A Review of Wildlife and Marine Resources of the Cape Parry Region in Relation to a Fuel Staging Area for Sea Vessels Near Cape Parry, N.W.T.,
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I 3 BEAUFORT EIS SUPPORT DOCUMENTS 1982.
[Individual volumes have different publishers and are catalogued separately. Please see full entries under appropriate citation numbers in other categories.]
13 vol.

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by D.B. Fissel. See: A145

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by ESL Environmental Sciences Limited. See: A23

Biological Overview of the Beaufort Sea and N.E. Chukchi Sea,
by LGL Limited, Environmental Research Associates and ESL Environmental Sciences Limited. See: A24

Biological Overview of the Northwest Passage, Baffin Bay and Davis Strait,
by LGL Limited Environmental Research Association.
See: A25

Dome Petroleum Limited Environmental Impact Statement Oil Spill Scenario 4: Tanker Collision in Lancaster Sound,
by LGL Limited Environmental Research Associates.
See: A268

Final Report on Arctic Tanker Risk Analysis,
by F.G. Bercha and Associates Limited.
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by Malcolm Lowings and Erik Banke. See: A171

Measurement of Wind, Ice, and Surface Layer Drift in Viscount Melville Sound, Summer, 1980. Volume 1-Summer 1980,
by D.D. Lemon, M.A. Wilson and L.E. Cuypers.
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by Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Resources Incorporated.
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Oil Spill Simulations in the Southeastern Beaufort Sea and Along the Proposed Eastern Tanker Route. Report D-81-2,
by J.R. Marko and C.R. Foster. See: A295

A Prospectus on the Biological Effects of Oil Spills in Marine Environments,
by Wayne S. Duval, Linda C. Martin and Ron P. Fink.
See: A304

Study of Ice Conditions in Navigational Channels, Viscount Melville Sound to Southern Beaufort Sea,
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See: A201

I 4 CANADA. DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT. ENVIRONMENTAL STUDIES.
Ottawa, Ontario : Canada. Department of Indian Affairs and Northern Development, 1980-1987.
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No. 15 Effects of Seismic Activity on the Behavior and Activity of Muskrats on the Mackenzie Delta,
by David A. Westworth. See: A227

No. 22 Recovery of Arctic and Sub-Arctic Vegetation Nine Summers After Crude and Diesel Oil Spills,
by T.C. Hutchinson. See: A361

No. 32 Chemical Analysis of Samples from Experimental Northern Terrestrial Oil Spills,
by Donald Mackay, Diane McCurdy, Wan Ying Shiu. See: A259

No. 34 Beaufort Environmental Monitoring Project 1983-1984,
by LGL Limited, ESL Environmental Sciences Limited, ESSA Limited. See: A253

No. 35 Sump Studies V - Ecological Changes Adjacent to Sumps at Exploratory Wellsites in the Mackenzie Delta and Northern Yukon. (A Summary Report),
by D.W. Smith and T.D.W. James. See: A372

No. 40 Beaufort Environmental Monitoring Project 1985-1986 Final Report,
by LGL Limited, et al. See: A13

No. 42 Heavy Metal and Organic Contaminents in Arctic Marine Fishes,
by D.C.G. Muir, et al. See: A125

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Calgary, Alberta : Canadian Institute of Resources Law, University of Calgary, 1984-1985.
5 vol.

Working Paper 5

The Assignment and Registration of Crown Mineral Interests with Particular Reference to the Canada Oil and Gas Act,
by N.D. Bankes. See: F8

Working Paper 6

Canadian Maritime Law and the Offshore: A Primer,
by W. Wylie Spicer. See: H6

Working Paper 7

Oil and Gas Conservation on Canada Lands,
by Owen L. Anderson. See: F57

Working Paper 9

The Canadian Regulation of Offshore Installations,
by Christian G. Yoder. See: F18

Working Paper 12

Liability for Drilling- and Production-Source Oil Pollution in the Canadian Offshore,
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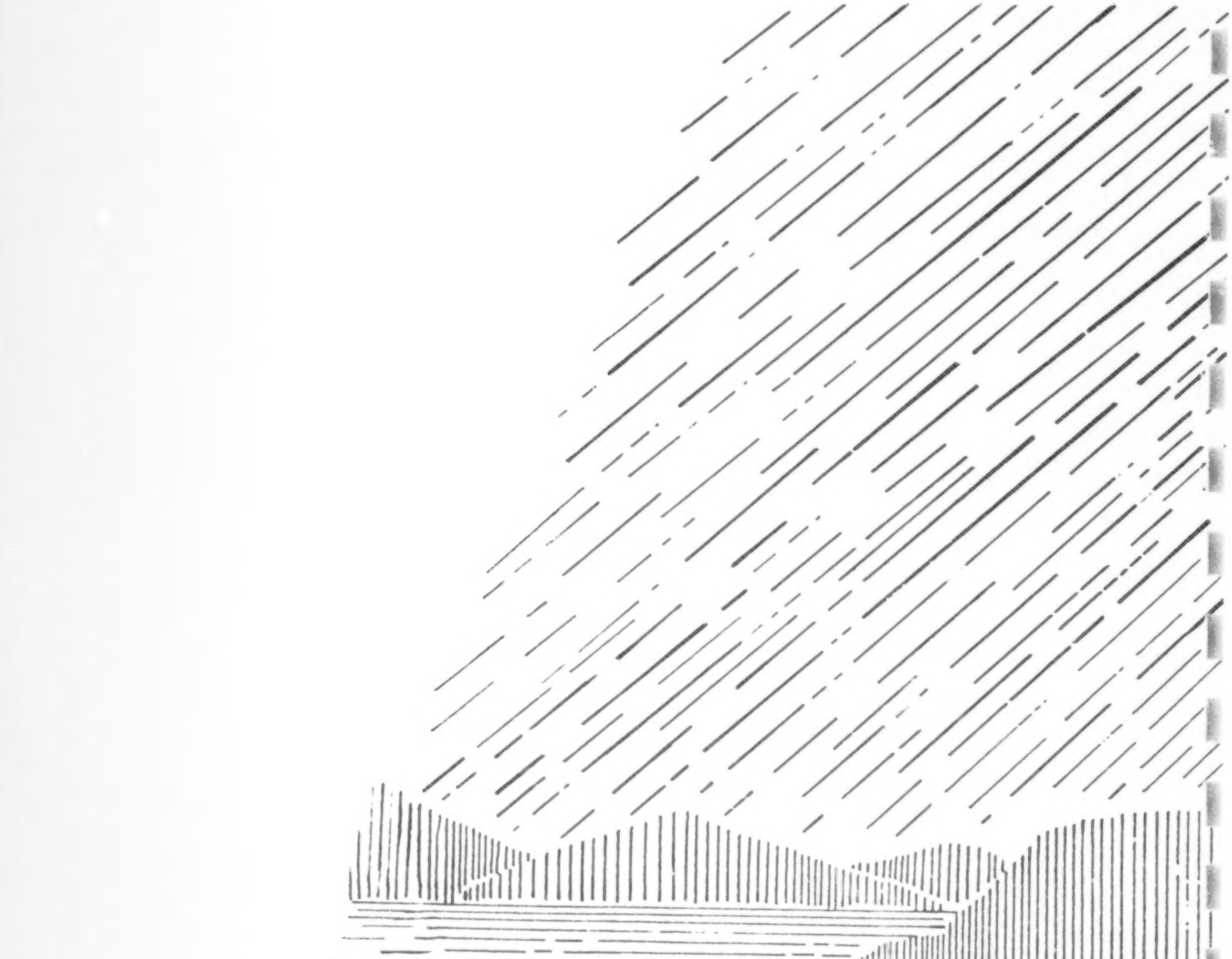

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